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- 1950 COOMBS, E. W., F.Z.S. ; "The Woodlands," Walderslade Road, Nr. Chatham, Kent.
- 1953 COOPER, Mrs. F. D. ; Dunstan Lodge, Churchdown, Gloucester.
- 1952 COOPER, J. T. ; Hall Farm, Outwell, Nr. Wisbech.
- 1951 CORBETT, R. C. U. ; Itchen Abbas Cottage, nr. Winchester, Hants.
- 1953 CORLETT, J. ; Rt. 6—Box 647, Mobile, Alabama, U.S.A.
- 1942 CORWIN, SAUL C. ; 165 Broadway, New York 6, New York, U.S.A.
- 1950 COWARD, D. M. ; "Karibu," Longfellow Avenue, Wellsway, Bath.
- 1925 COWLEY, H. ; The Manor House, Bubbenhall, Nr. Coventry.
- 1947 COWLISHAW, A. G. ; The Chalet, 35 Aylesbury Street, Bletchley, Bucks.
- 1933 COX, Mrs. B., F.Z.S. ; Barncrosh, Castle Douglas, Scotland.
- 1952 COYNE, Capt. S. F. ; 2nd Bn. The Sherwood Foresters, Meanee Barracks, Colchester, Essex.
- 1951 CRAGGS, L. ; 15 Henderson Street, Darlington, Co. Durham.
- 1953 CRAIG, J. ; 111 Glen Avenue, Larkhall, Lanarkshire.
- 1946 CREWES, T. ; "Walton Croft," Manor Way, Beckenham, Kent.
- 1929 CROFTS, ROBERT T. ; 85 Reeves Avenue, Cross Heath, Newcastle, Staffs.
- 1949 CRONE, G. H. ; "Vyverhof," Lage Vuursche, Holland.
- 1948 CUMMINGS, W. D. ; The Keston Foreign Bird Farm, Ltd., Brambletye, Keston, Kent.
- 1952 CUNNINGHAM, A., F.Z.S. ; 84 Hamilton Road, East Finchley, N. 2.
- 1928 CURA, L., F.Z.S. ; Water End, Hemel Hempstead, Herts.
- 1953 CURNOW, E. T. ; 3102 North 24th Street, Phoenix, Arizona, U.S.A.
- 1952 CURTO, F. ; North Side Conservatory-Aviary, West Park, Pittsburgh 12, Pennsylvania, U.S.A.
- 1939 DABNER, P. L. ; 56 Arkwright Road, Sanderstead, Surrey.
- 1951 D'AETH, A. H., F.Z.S. ; 45 Ormonde Terrace, Regent's Park, N.W. 8.
- 1946 DALBORG-JOHANSEN, J. ; Dyr-laage, Graabrødreplads 6, Odense, Denmark.
- 1953 DALE, S. J. A. ; Wagg Street, Congleton, Cheshire.

- 1949 DALGETY, C. T., M.B.O.U. ; Radnall Mill, Baldock, Herts.
 1937 DALLOW, F., M.B.E. ; 13 Hillingdon Road, Stretford, Manchester.
 1948 DANHIER, M. F. ; 182 Chaussee de Charleroi, Brussels, Belgium.
 1950 DARMAN, H. J., F.Z.S., F.R.H.S. ; 44 Fraser Road, Walthamstow, London, E. 17.
 1932 DARNTON, Mrs. I. ; Sissinghurst Court, Cranbrook, Kent.
 1927 DAVIS, Sir GODFREY, I.C.S., F.Z.S. ; Beresfords, Boughton Monchelsea, Nr. Maidstone, Kent.
 1941 DAVIS, H. H. ; Little Stoke, Patchway, Bristol.
 1950 DAY, J. N. E., M.Sc., Ph.D. ; 18 Home Wood Road, St. Albans, Herts.
 1952 DEACON, D. R. ; 41 Hilders Road, Western Park, Leicester.
 1951 DEAN, A. W. S. ; Sudbrook Manor, Sudbrook, Grantham.
 1952 DEANS, G. ; 3 New Edinburgh Road, Dalkeith, Midlothian.
 1953 D'EATH, J. O. ; The Grove, Hadley, Barnet, Herts.
 1953 DE BEAUMONT, Mrs. G. ; Blairlogie House, Menstrie, Clackmannanshire, Scotland.
 1949 DE COOMAN, Rev. H. J. J. ; 1 Pontstraat, St. Martens-Leerne, Oost Vlaanderen, Belgium.
 1917 DECoux, A. ; G ry, Aix-sur-Vienne, Haute-Vienne, France.
 1948 DE GOEDEREN, G. ; Orteliuskade 74, Amsterdam, Holland.
 1950 DE JONG, L. ; Plantage Kerklaan 40, Amsterdam, Holland.
 1903**DENNIS, Mrs. H. E. ; Lower Nash, Nutbourne, Pulborough, Sussex.
 1924 DENNY, Mrs. H., C.B.E., J.P. ; The Chantry, Horsham, Sussex.
 1930 DE PASS, GERALD V., F.Z.S. ; The Old Kennels, Satwell, Nr. Henley-on-Thames.
 1932 DE PLEDGE, Miss BERYL ISABEL, F.Z.S. ; (Address unknown).
 1948 DESAI, PRADYUMAN K. ; Takhteshwar Plot, Bhavnagar, Saurashtra, India.
 1945 DEXTER, J. E., M.M. ; Lamorna, Ongar Road, Pilgrims Hatch, Nr. Brentwood, Essex.
 1951 DIEDRICH, W. W. ; Dierenpark Wassenaar, Rijksstraatweg 667, Wassenaar, Holland.
 1953 DOLTON, K. W. ; Sundown, Oakleigh Avenue, Hallow, Worcester.
 1954 DOMINGUEZ, Dr. R. H. ; Box 248, Utuado, Puerto Rico.
 1949 DOMINICK, GEORGE D. ; 13 Nokomis Circle, Knoxville 16, Tennessee, U.S.A.
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 1953 DOSSCHE, A. ; 2 rue des Architectes, Mont-St. Amand, Gand, Belgium.
 1951 DOUGHTY, E. C. ; 53 Bath Street, Market Harborough, Leicester.
 1947 DOVER, G. W. ; 12 Trinity Terrace, Abergavenny, Mon.
 1947 DRING, W. T., F.Z.S. ; 12 East Park Street, Chatteris, Cambs.
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 1947 DUFOUR, Colonel JOHN ; 167 Avenue de Belgique, Antwerp, Belgium.
 1939 DULANTY, BRIAN H., F.Z.S. ; Fisheries Cottage, Chorley Wood, Herts.
 1952 DUNCAN, P. ; 5 Viewfield Place, Perth, Scotland.
 1922 DUNMORE, OSCAR E., F.Z.S. ; 22 Kingsway Road, Leicester.
 1930 DUNSTER, Capt. J. E. ; Bucklebury Village, Nr Reading, Berks.
 1927 DUYZEND, P. ; Koppeldijk 24, Huize, "Casarca," Zeist, Holland.
 1953 DVORAK, K. ; 305 N. Kilbourn Avenue, Chicago 24, Ill., U.S.A.
 1951 EASTICK, D. M. ; The Mill House, Sonning, Berks.
 1936 EAVES, W. L., F.Z.S. ; 581 Warwick Road, Solihull, Birmingham.
 1953 EDEN, G. R. ; "Silver Birches," Temple Wood Lane, Farnham Common, Slough, Bucks.

- 1953 EFROS, S. ; 4907 Rodeo Road, Apt. 1, Los Angeles, Calif., U.S.A.
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 1926 ELWES, Mrs. ROBERT ; Little Congham, King's Lynn, Norfolk.
 1949 ENEHJELM, C. AF, C.M.Z.S.; Högholmens Djurgård, Helsingfors, Finland.
 1935 ENGELBACH, Dr. PIERRE ; 64 rue Saint-Denis, Colombes (Seine), France.
 1950 EVANS, F. J., F.Z.S. ; 51 Brunswick Road, Leyton, E. 10.
 1929 EVANS, Miss JOAN ; Townsend, Middle Wallop, Hants.
 1950 EVANS, R. E., M.B., Ch.B. ; 12 Kirklee Terrace, Glasgow, W. 2.
 1953 EVANS, T. H. ; Cedar Villas, Ruabon Road, Johnstown, Nr. Wrexham,
 N. Wales.
 1951 EVERETT, H. C. ; 7932 Old River Road, Forestville, Calif., U.S.A.
 1953 FAIRIE, G. W. ; 76 Stirling Road, Tullibody, Clackmannanshire, Scotland.
 1949 FANCUTT, FRANK, F.Z.S. ; 86 Linden Drive, Alvaston, Derby.
 1946 FAUDELL, C. L. ; 45 Dickason Road, Heathmont, Ringwood, Victoria,
 Australia.
 1951 FELSTEAD, Miss M. ; 108 Beulah Road, Thornton Heath, Surrey.
 1948 FIELD, H. C. ; 79 Weoley Park Road, Selly Oak, Birmingham 29.
 1950 FIERLAFIJN, J. ; Karel Oomstraat 24, Antwerp, Belgium.
 1953 FINCH, Colonel H. B. ; "Revesby," Hutton Road, Ash Vale, Surrey.
 1952 FIORAVANTI, The Marquis ; Bellosguardo 14, Florence, Italy.
 1952 FIRTH, C. G. ; 28 Brennan Road, Tilbury, Essex.
 1950 FISHER, A. ; 25 Drapers Field, Coventry.
 1953 FLAXMAN, G. ; 618 Layard Street, London, Ontario, Canada.
 1951 FLETCHER, J. ; 6511 Francis Avenue, Seattle, Washington, U.S.A.
 1935 FLOYD, J. F. M., M.A., M.B.O.U. ; High Bridge Mill, Cuckfield, Sussex.
 1948 FOGG, H. ; 190 Station Road, Wylde Green, Sutton Coldfield, Nr.
 Birmingham.
 1925 FOOKS, F. E. ; Clères, Seine Inférieure, France.
 1932 FOOKS, H. A. ; Kestrels, Holmshurst, Burwash, Sussex.
 1951 FORD, J. ; 186 Woolwich Church Street, Woolwich, S.E. 18.
 1953 FORSTER, T. ; "Edgeley," Westminster Road, Macclesfield, Cheshire.
 1953 FOSTER, P. ; 7 Irlam Road, Sale, Nr. Manchester.
 1951 FOTHERGILL, Miss S. A., F.Z.S. ; 8 Whitelands House, Sloane Square,
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 1952 FOTHERINGHAM, R. ; 16 Fore Street, Johnshaven, Montrose, Scotland.
 1953 FRAMPTON, P. ; 53 Brunner Road, Broadmeadow, N.S.W., Australia.
 1953 FRANDSEN, A. C. ; 896 Ruth Drive, Concord, California, U.S.A.
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 1933 FRAYNE, RALPH ; 50 Cantley Lane, Bessacarr, Doncaster.
 1945 FREEMAN, CHARLES R., F.Z.S. ; 7 Valentine Crescent, Caversham,
 Reading, Berks.
 1950 FRILING, W. ; Eikelenberg, Brasschaat, Nr. Antwerp, Belgium.
 1952 FRODSHAM, J. ; The Frythe, Welwyn, Herts.
 1950 FROST, R. ; The Gravel, Station Road, Brimington, Chesterfield.
 1908 FROST, WILFRED J. C. ; c/o Zoological Society of London, Regent's Park,
 London, N.W. 1.
 1947 FROSTICK, W. B. ; 26 Minster Precincts, Peterborough, Northants.
 1929 FURNER, A. C. ; Oakdene, 115 Whitaker Road, Derby.
 1950 GADD, J. A. ; 75 Holly Road, Aldershot, Hants.
 1948 GALLAND, JOHN F. ; 197 Fraser Street, Howick, Pietermaritzburg, Natal,
 South Africa.

- 1953 GARDENER, L. F. ; 10 New Way, Pinelands, Cape Town, S. Africa.
 1941 GARDNER, A. H. ; 21 Kingsland Road, Strathfield, Sydney, N.S.W., Australia.
 1951 GARNER, R. ; 1 Arno Vale Gardens, Woodthorpe, Nottingham.
 1951 GARRATT, J. C. ; Wychwood Farm, Shermanbury, nr. Horsham, Sussex.
 1949 GARY, F. L. ; Earlham, Columbus, New Jersey, U.S.A.
 1950 GASK, Miss D., F.Z.S. ; "Twa Noon," Lincoln Road, Chalfont-St.-Peter, Bucks.
 1950 GAUNT, M. W. ; 48 Ainsdale Road, Western Park, Leicester.
 1950 GAUNTLETT, PHILIP W. ; Bury Farm, Hertingfordbury, Herts.
 1948 GEERTSEMA, Lt.-Colonel C. C. ; Soestdijk Palace, Baarn, Holland.
 1950 GEMMILL, JOHN ; Aikenhead, Kilmarnock, Ayrshire.
 1948 *GERARD, Hon. ROBERT, M.B.O.U. ; Blakesware, Ware, Herts.
 1911 GHIGI, Professor ALESSANDRO, C.M.Z.S., M.B.O.U. ; Laboratorio di Zoologia Applicata Alla Caccia, Università di Bologna, S. Giacomo 9, Bologna, Italy.
 1948 GIBSON, R. H. ; R.R.2, Box 336, St. Helena, Calif., U.S.A.
 1953 GILBERT, R. N. ; 324 Hampton Avenue, Salt Lake City, Utah, U.S.A.
 1953 GILBERT, R. S. ; 160 Heath Park Road, Gidea Park, Essex.
 1950 GILBERT, W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
 1950 GILBERT, Mrs. W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
 1948 GILL, J. M. ; 324 Lady Margaret Road, Southall, Middx.
 1953 GILLAN, A. ; 66 Broomhill Road, Aberdeen, Scotland.
 1946 GILLEN, JOHN ; Ballycraigy, Ballymena, Co. Antrim, N. Ireland.
 1953 GJESSING, G. A. ; "Woodberry Hill," Konnerud, Drammen, Norway.
 1928 GLENISTER, A. G., F.Z.S., M.B.O.U. ; The Barn House, East Blatchington, Seaford, Sussex.
 1950 GLENN, Mrs. EVA ; c/o Justrite Pet Foods, Ltd., P.O. Box 39, Station B., Hamilton, Ontario, Canada.
 1931 GLOVER, P. H., F.Z.S. ; Oparacana Street, Ngongotaha, Rotorua, New Zealand.
 1953 GLOVER, P. J. ; Delamore Farm, Cornwood, S. Devon.
 1951 GODELMAN, R. ; Murcocks Farm, Fryerning, Ingatestone, Essex.
 1952 GODSEY, R. E. ; Rt. 8, Box 107-A, Greenville, So. Car., U.S.A.
 1950 GODWIN, J. H. ; 21 Vincent Road, Osterley, Isleworth, Middx.
 1950 GOETZ, L. D. ; 2537 N. Austin Blvd., Chicago 39, Illinois, U.S.A.
 1950 GOMM, F. A. ; The Cave, Amersham Road, Hazlemere, High Wycombe, Bucks.
 1953 GOOD, E. H. ; Buckland Fields, Lymington, Hants.
 1953 GOOD, Mrs. E. H. ; Buckland Fields, Lymington, Hants.
 1933 GOODALL, A. W. ; 33 Stuart Avenue, Hunts Cross, Liverpool.
 1945 GOODWIN, DEREK, M.B.O.U. ; Toft, Monk's Road, Virginia Water, Surrey.
 1920 GOODWIN, TOM ; "Aves," Kiln Lane, Ripley, Surrey.
 1953 GOPSILL, R. H. ; 152 Wyggeston Street, Burton-on-Trent.
 1945 GORDON, Mrs. BEATRICE HOOD CLAESON, F.Z.S. ; Cluny Castle, Monymusk, Aberdeen.
 1951 GORDON, W. H., Jr. ; 4412 West Sixteenth Street, Lubbock, Texas, U.S.A.
 1923 *GOSSE, LADY ; Aldgate, South Australia.
 1949 GOUGH, L. ; 101 Claypit Lane, West Bromwich, Staffs.
 1952 GRAHAM, J. ; Bushey Park, Ballyskeagh, Newtownards, Co. Down, Ireland.
 1935 GRANT, FRANK ; Parklands, Stoughton Lane, Evington, Leicester.
 1953 GRANTHAM, R. H. ; 13 St. Wilfrids Road, New Barnet, Herts.

- 1951 GRAY, J., A.R.I.B.A. ; "Braemar," Dryburn Road, Durham Moor, Durham.
- 1950 GRAY, W. ; 4 Windsor Close, Trowell, Notts.
- 1952 GREGORY, J. J. ; 66 Carew Road, Hamden, Conn., U.S.A.
- 1952 GRICE, H. ; Mount Pleasant, Hanging Grimston, Kirby Underdale, York.
- 1953 GRIFFITHS, A. V. ; Bryn Awel, Llandyssul, Cards.
- 1950 GRIFFITHS, GRAYDON ; School House, Great Brickhill, Bletchley, Bucks.
- 1946 GRIFFITHS, WILLIAM ; Downs End, 152 Worple Road, Wimbledon, S.W. 19.
- 1947 *GRISWOLD, JOHN A. ; The Zoological Society of Philadelphia, 34th Street and Girard Avenue, Philadelphia 4, Pa., U.S.A.
- 1951 GROUND, W. J. ; "Albion House," 61 Pinchbeck Road, Spalding, Lincs.
- 1917 GROVES, Hon. Mrs. McGAREL ; Battramsley House, Lymington, Hants.
- 1951 GRUBER, H. F., F.R.Z.S. (Scot.) ; 9 Churchill, Morningside, Edinburgh 10,
- 1928 GUBBAY, Mrs. MAURICE ; c/o A. Ezra, Esq., Foxwarren Park, Cobham, Surrey.
- 1951 GUDMUNDSSON, Dr. F. ; Museum of Natural History, P.O. Box 532, Reykjavik, Iceland.
- 1908 GULBENKIAN, C. S. ; "Kent House," Great Titchfield Street, Oxford Circus, London, W. 1.
- 1947 GULLIVER, V. S. ; 33 Vale Road, Aylesbury, Bucks.
- 1951 GURDEN, R. W. ; 23 East St. Helens Street, Abingdon, Berks.
- 1927 GURNEY, Miss DIANA ; North Runcion Hall, King's Lynn.
- 1942 GUY, CHARLES P. ; High Lodge, Fullaford, Buckfastleigh, S. Devon.
- 1939 HADDEN, NORMAN G. ; Underway, West Porlock, Somerset.
- 1952 HADLOW, L. A. ; Barbary Farm, Norton, Faversham, Kent.
- 1952 HADZIMA, J. ; 2059 Sweetwater Avenue, Spring Valley, California, U.S.A.
- 1951 HAITH, J. E. ; Park Street, Cleethorpes, Lincs.
- 1948 HALE, O. ; Laithfield, Digswell, Welwyn, Herts.
- 1951 HALL, R. E., M.D. ; (Address unknown.)
- 1943 HALLSTROM, Sir EDWARD, F.R.Z.S., C.M.Z.S. ; 462 Willoughby Road, Willoughby, Sydney, N.S.W., Australia.
- 1937 HALVERSON, A. W. ; 5705 West Erie Street, Chicago 44, Ill., U.S.A.
- 1926 HAMPE, ALEX ; 13a Grub am Forst bei Coburg, Bavaria, American Zone, Germany.
- 1952 HANNING, W. H., Jr. ; Waukon, Washington, U.S.A.
- 1946 HANSEN, PAUL ; Gormsgade 3, I. Sal, Odense, Denmark.
- 1949 HANSEN, ROBERT J. ; P.O. Box 46, Gonzales, Calif., U.S.A.
- 1952 HANSEN, SVEND T. ; 101 Amager Landevej, Kastrup, Amager, Denmark.
- 1946 HARDING, C. F. ; Brooklyn Stores, Otago Terrace, Larkhall, Bath.
- 1953 HARDING, I. G. ; 61 Hawkesley Drive, Northfield, Birmingham 31.
- 1948 HARDY, G. C., Jr. ; 61-18th Avenue East, New Westminster, B.C., Canada.
- 1942 HARE, TOM, M.D., B.V.Sc., M.R.C.V.S., M.B.O.U. ; 529a Finchley Road, London, N.W. 3.
- 1949 HARMAN, H. J. ; 10 Haydon Road, Dagenham, Essex.
- 1950 HARMON, Mrs. VERA ; 3601 West 102nd Street, Inglewood 2, Calif., U.S.A.
- 1950 HARRIS, A. J., Jr. ; Rte. 1—Box 24, Pendleton, Virginia, U.S.A.
- 1951 HARRIS, Mrs. E. ; 11 Prince Albert Street, Dudley, Worcs.
- 1953 HARRIS, N. H. C. ; Natal Spruit, Transvaal, S. Africa.
- 1952 HARRISON, B. ; Box 10, Lidingö 1, Stockholm, Sweden.
- 1945 HARVEY, ARTHUR W. H. ; Rydal, Long Rock, Penzance, Cornwall.

- 1930 HASTINGS, P. H. ; 182 Sultan Road, Landport, Portsmouth.
 1951 HATCH, H. L. ; The Dudley Zoological Society, Dudley, Worcs.
 1952 HAWKE, E. H. ; Box 796, Lourenco Marques, Portuguese East Africa.
 1953 *HAWLEY, W. M. ; 703-15th Avenue, New Westminster, B.C., Canada.
 1953 HAYES, J. ; 71 Carver Street, Boston, Mass., U.S.A.
 1946 HAYWARD, Mrs. D. A. ; Invermay, Highland Avenue, Brentwood, Essex.
 1950 HEARD, A. C. ; The Cedars, Baschurch, Shrewsbury.
 1947 HEATH, R. E., B.A., M.B.O.U. ; 2 Pembroke Court, Edwardes Square, W. 8.
 1949 HEFT, ELMER A. ; Green Lake, Wisconsin, U.S.A.
 1952 HEMPSTED, H. J. ; 2 New Houses, Bacton Road, North Walsham, Norfolk.
 1952 *HENDERSON, W. B. ; Viewfield House, Bankfoot, Perthshire.
 1945 HENRY, B. R., M.B., B.Ch., D.H.P. ; Four Winds, Comber, Belfast, N. Ireland.
 1952 HENRY, G. M. ; Ellagalla, Church Enstone, Oxon.
 1952 HEPWOOD, W., F.Z.S. ; "Dogberry," 11 Tott Yew Road, Lower Willingdon, Eastbourne.
 1951 HERMITAGE, R. ; 53 Burnt Oak Terrace, Gillingham, Kent.
 1953 HEWITT, R. A. ; 98 Berkshire Road, Hackney Wick, E. 9.
 1952 HIGHT, G. L., Jr. ; Box 271, Rome, Georgia, U.S.A.
 1951 HILL, K. ; 93 Elmhurst Drive, Hornchurch, Essex.
 1952 HILL, R.C. ; "Tarrants," Wothorpe, Stamford, Lincs.
 1939 HILL, W. C. OSMAN, M.D., Ch.B., F.L.S., F.Z.S. ; Lancaster House, Prince Albert Road, London, N.W. 8.
 1945 HINDLE, E., M.A., Sc.D., F.R.S., F.L.S., F.Z.S. ; The Athenaeum, Pall Mall, London, S.W. 1.
 1929 HIRST, A. ; Box 262, G.P.O., Sydney, N.S.W., Australia.
 1926 HIRST, ROBERT S., F.Z.S. ; Swincliffe House, Gomersal, Nr. Leeds.
 1953 HOBSON, Mrs. D. A. ; Warren Cottage, Totland Bay, Isle of Wight.
 1947 HODGES, J. R., D.Ph., F.Z.S. ; 17 Bloomsbury Square, W.C. 1.
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 1930 *HOLLOND, Miss GLADYS M. B. ; Great Ashfield House, Bury St. Edmunds, Suffolk.
 1943 HOLLOWAY, JACK, F.Z.S. ; 59 Holyrood Gardens, Stag Lane, Edgware, Middx.
 1951 HOLM, BJÖRN ; Kyrkogatan 5, Kiruna, Sweden.
 1953 HOLTER, D. A. ; 221-31st Street, Manhattan Beach, Calif., U.S.A.
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 1928 HORNE, DOUGLAS PERCY ; Audley Lodge, Addlestone Park, Addlestone, Surrey.
 1948 HOSKEN, JOHN H. ; P.O. Box 667, Johannesburg, South Africa.
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 1934 HOUSDEN, Major E. F., M.C., T.D., M.A., F.Z.S. ; 126 Bessborough Road, Harrow.
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 1933 HOUSDEN, LESLIE, O.B.E. ; Mulberry Hill, Baughurst, Basingstoke, Hants.
 1942 HOVELL, S. ; 29 Wood Lane, Long Sutton, Spalding, Lincs.
 1952 HUDDART, B. J., M.B.O.U. ; Shirley House, Marsh Lane, Taplow, Bucks.
 1950 HUGHES, N. D. ; 1 High Street, Hampton Hill, Middx.
 1950 HUMPHRYS, F. ; Dorothy Café, Commercial Street, Maesteg, Bridgend, Glam.

- 1953 HUNT, W. G. ; 26 Middle Street, Brixham, Devon.
 1939 HURLBURT, Dr. W. E. ; Vineland, Ontario, Canada.
 1947 HUYTON, A. E. ; 55 Victoria Road, Great Crosby, Liverpool 23.
- 1940 ILES, GERALD, F.Z.S. ; Zoological Gardens, Belle Vue, Manchester 12.
 1939 INDGE, H. J., F.Z.S. ; Trimstone, Thorpe, Nr. Egham, Surrey.
 1953 INGLIS, J. F. ; Montgarrie Road, Alford, Aberdeenshire.
 1948 IRVING, G. J. ; 2 Grove Road, Egremont, Cumberland.
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 1952 *ISAKSON, Dr. E. W. ; 168 West 12th Street, Ogden, Utah, U.S.A.
 1926 ISENBERG, A. H. ; 451 Portola Road, Woodside, California, U.S.A.
- 1950 JACKSON, ROBERT, F.Z.S. ; 1 Park Avenue, Timperley, Cheshire.
 1951 JACOBSON, OWE ; Kaprifolgatan 4, Malmö, Sweden.
 1953 JAKOBSSON, Miss D. A. ; Summerlands Cottage, Ferndown, Wimborne, Dorset.
- 1950 JAMES, N. ; 1 Central Drive, Fenton, Stoke-on-Trent.
 1942 JANSON, CHARLES W. ; 16 Wilton Crescent, London, S.W. 1.
 1953 JASAWALLA, C. M. ; " Hill Crest," 14 Salisbury Park, Poona, India.
 1947 *JASDAN, H. H. YUVRAJ SHREE SHIVRAJ KHACHAR ; The Palace, Jasdán (Kathiawar), India.
- 1953 JOHNSON, D. M. ; Rte 4, Box 312, Port Orchard, Washington, U.S.A.
 1952 JOHNSON, F. E. B. ; " Willow Close," Mill Lane, Hulcote, Bletchley, Bucks.
 1951 JOHNSTONE, S. T. ; The Severn Wildfowl Trust, The New Grounds, Slimbridge, Glos.
- 1949 JONES, C. G. ; 8416 N.E. 3rd Place, Route 1, Bellevue, Washington, U.S.A.
 1933 JONES, F. Terry, F.Z.S. ; Leckford Abbas, Stockbridge, Hants.
 1953 JONES, Cpl. M. LEE ; R.A. 52100460, 915th Medical Co. Ambulance (Sep), A.P.O. 165, U.S. Army, Germany.
- 1934 JONES, S. B. ; 265 Northway, Maghull, Nr. Liverpool.
 1950 JONES, Major V. DILWYN ; " Sherwood," Grosvenor Road, Llandrindod Wells, Radnor.
- 1954 JØRGENSEN, B. ; International Zoo Library, Zoo-Centret, Lyngby, Denmark.
- 1952 KAVANAGH, G. ; Ormonde House, Arklow, Co. Wicklow, Ireland.
 1953 KEELING, C. H. ; 2 Highfield Terrace, Chesterfield, Derbyshire.
 1952 KEEP, A. E. ; Avondale, Springfield Lane, Broadway, Worcs.
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 1951 KELLOGG, Mrs. F. M. ; R.F.D.1., Pound Ridge, New York, U.S.A.
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 1927 KERR, J. E. ; Harviestoun, Dollar, Scotland.
 1953 KERSLEY, Mrs. M. ; Little Butts Farm, Cousley Wood, Wadhurst, Sussex.
 1938 KING, H. T. ; 80 Bedale Road, Sherwood, Nottingham.
 1953 KINGSLAND, W. F. ; Redding, Connecticut, U.S.A.
 1950 KINGSTON, W. R. ; Springfields, Betchton, Sandbach, Cheshire.
 1953 KIRBY, C. ; 3 Hurst Grove, Lidlinton, Beds.
 1950 KIRK, KEITH C. ; 54 Station Road, Sutton-in-Ashfield, Notts.
 1953 KIRK, Dr. R. S. ; 1 Upper Harley Street, N.W. 1.
 1948 KIRKALDY, Mrs. M., F.Z.S. ; The Grove, Warley Mount, Brentwood, Essex.

- 1952 KIRKHAM, R. G. ; "The Gables," Wynnsward Park, Clonskeagh, Co. Dublin, Eire.
- 1952 KLAASEN-SÉE, Mrs. M. ; Papaverstraat 42, Bussum, Holland.
- 1950 KNIGHTS, W. A. ; 144 Argyle Street, Cambridge.
- 1928 KNOBEL-HARMAN, Miss M. H., F.Z.S. ; 19 Connaught Square, London, W. 2.
- 1952 KNÖS, C. J. ; Ludvigsborg, Sweden.
- 1954 KRAUS, F. ; Neuried 1, Muenchen 49, Germany.
- 1947 LABDON, B. ; Millberne, Cullompton, Devon.
- 1951 LABELLE, R. ; 832 Beaubien Street East, Montreal, P.Q., Canada.
- 1929 LAIDLAY, J. C. ; Holmwood, Perth, Scotland.
- 1951 LAKE, Dr. F. B. ; The White House, 5 Portsmouth Road, Kingston-on-Thames.
- 1937 LAKE, GEORGE D., M.B.O.U. ; Audreys, Burghfield Common, Reading, Berks.
- 1945 LAMB, A. ; Mount Pleasant, Hexham, Northumberland.
- 1954 LANCE, V. P. ; Route No. 3, Denison, Texas, U.S.A.
- 1952 LAND, S. D. ; 841 St. Helens Road, Over Hulton, Bolton, Lancs.
- 1950 LANGBERG, WALTHER ; Tudskaervej 22, Copenhagen, Vanløse, Denmark.
- 1919 LAW, SATYA CHURN, M.A., Ph.D., F.Z.S., M.B.O.U. ; 50 Kailas Rose Street, Calcutta, India.
- 1952 LAWRENCE, C. C. ; Normacot, Cressing, Braintree, Essex.
- 1930 LAX, J. M. S. ; Southfield, Crook, Co. Durham.
- 1949 LAZZERONI, Ivo ; 5034 Templeton Street, Los Angeles 32, Calif., U.S.A.
- 1952 LEDGER, H. G. ; New Town Cottage, Wingham, Kent.
- 1953 LEE, N. A. ; 39 Erdington Road, Blackpool, Lancs.
- 1946 LEMON, Miss E. ; 3007 Wilson Avenue, South Burnaby, B.C., Canada.
- 1952 LESTER, J. W., F.L.S., F.Z.S. ; c/o Zoological Society of London, Regent's Park, N.W. 1.
- 1949 LEVER, H. ; 14 April Street, C-on-M., Manchester 13.
- 1950 LEVY, E. T. ; 22 Crossbow Road, The Lowe, Chigwell, Essex.
- 1946 LEWIS, W. O. ; Milnsbridge, Bicton Heath, Shrewsbury.
- 1952 LIMBERG, HANS ; Harscampstrasse 62, Bad Aachen, Germany.
- 1951 LINDSAY, A. ; 422 Lake Street, Oak Park, Illinois, U.S.A.
- 1953 LINFIELD, W. F. ; Grans. Cottage, Thakeham, Sussex.
- 1951 LIPPENS, LÉON ; Den Hul, 43 Boslaan, Knocke-Le Zoute, Belgium.
- 1952 LITTLECHILD, B. ; 4 Rye Mead Cotts, Rye Road, Hoddesdon, Herts.
- 1941 LIVERMORE, JOHN W. ; 135 East 54th Street, Apt. 11 B., New York City 22, U.S.A.
- 1952 LOAR, J. A. ; 8 Coleridge Road, Wyken, Coventry.
- 1953 LOGAN, F. ; 21 Plantagenet Street, Nottingham.
- 1951 LOUWMAN, P. ; Dierenpark Wassenaar, Rijksstraatweg 667, Wassenaar, Holland.
- 1952 LOVELL, D. R. ; "St. George," 51 Mildred Avenue, Harlington, Hayes, Middx.
- 1927 LOWE, Rev. J. R. ; The Vicarage, Coln Street, Aldwyn, Fairford, Glos.
- 1951 LUCAS, V. J. ; Park House, West Rasen, Market Rasen, Lincs.
- 1947 LUMSDEN, Lt.-Col. WILLIAM V. ; Sluie, Banchory, Aberdeenshire, Scotland.
- 1952 LUTHER, H. M. ; 26 Park Crescent, Regent's Park, W. 1.
- 1947 LYNCH, G., F.Z.S. ; 21 Sunnycroft Road, Hounslow, Middx.
- 1927 LYON, Capt. the Hon. Michael ; Glamis Castle, Glamis, Forfarshire.

- 1951 MABEY, R. N. ; Continental Bank Building, Salt Lake City, Utah, U.S.A.
 1948 MACK, H. G. ; c/o Gilson Manufacturing Co., Ltd., Guelph, Ontario, Canada.
 1948 MACKENSEN, RICHARD S. ; Yardley, Pa., U.S.A.
 1953 MACPHIE, D. J. ; Hazel Cottage, Petersham, Surrey.
 1953 MACRAE, Miss H. I. ; 15 Forbes Road, Edinburgh 10, Scotland.
 1947 MAITLAND, Miss M. C. ; North Lodge, Goring-by-Sea, Sussex.
 1948 MALISOUX, Madame YVAN ; Beez, Namur, Belgium.
 1950 MALLEN, A. ; 34 Willingsworth Road, Ocker Hill, Nr. Wednesbury, Staffs.
 1946 MARSHALL, D. A. ; 21 Wilson Avenue, Troon, Ayrshire.
 1950 MARSHALL, J. C. ; 25 Stevens Road, Sandiacre, Notts.
 1930 MARTIN, A. ; 26 Somerford Road, Reddish, Stockport.
 1951 MASON, H., M.C., F.Z.S. ; 2 Dunstan Road, London, N.W. 11.
 1952 MASON, L. M. ; Talbot Manor, Fincham, King's Lynn, Norfolk.
 1935 MATTHEWS, Mrs. W. M. ; Glandore, New Park Road, Cranleigh, Surrey.
 1953 MAUGHAN, T. ; 77 Calton Avenue, Dulwich, S.E. 21.
 1929 MAXWELL, P. H., F.Z.S., M.B.O.U. ; c/o Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
 1913 *MAXWELL-JACKSON, Miss M., F.Z.S. ; Percy House, Scotton, Knaresborough, Yorks.
 1922 *MAYER, F. W. SHAW, C.M.Z.S. ; c/o Mr. R. W. Tebb, Lac, New Guinea, via Australia.
 1948 MEEREN, MICHEL BRAUN DE TER. ; L'Hesidelle, Archennes, par Grez-Doiceau, Belgium.
 1935 MERCK, Dr. WOLFGANG ; Marienhöhe 4, Hamburg-Blankenese, Germany.
 1950 MERRY, C. ; 89 King William Street, Tunstall, Stoke-on-Trent.
 1951 MIDDLETON, G. ; 50 Carter Street, Uttoxeter, Staffs.
 1953 MIDDLETON, L. G. ; Stack House, Old Green Lane, Garstang, Lancs.
 1951 MIDWINTER, J. ; 62 Oxford Road, Burford, Oxford.
 1953 MIGHELL, E. R. ; 106 Selborne Road, Southgate, N. 14.
 1951 MILLER, H. E. ; "Westwater," Tedburn St. Mary, Nr. Exeter, Devon.
 1950 MILLER, R. C. ; Standard Bank of South Africa, Ltd., Pietermaritzburg, Natal, S. Africa.
 1937 MILLIGAN, H. ; Upper Manor Farm, Leckford, Stockbridge, Hants.
 1951 MILLIGAN, I. B. ; 5 Silsey Avenue, Sale, Cheshire.
 1951 MILNE, R. S. ; 18 Silverwell Street, Bolton, Lancs.
 1929 MILNES-COATES, Sir CLIVE, Bart., F.Z.S. ; 13 Hyde Park Gate, London, S.W. 7.
 1937 MILTON, Capt. STANLEY ; 75 Portland Avenue, Gravesend, Kent.
 1948 MITCHELL, A. ; 16 Albany Street, Hull, Yorks.
 1953 MITCHELL, A. ; 3 Borrowdale Grove, Northfield, Birmingham 31.
 1952 MITCHELL, Mrs. F. G. ; Clapton Manor, Kettering, Northants.
 1943 MITCHELL, HAROLD A. ; 2 Stuart Street, East Kilbride, Lanarkshire.
 1952 MITCHELL, R. E. ; 49 Woodlands Avenue, Church End, Finchley, N. 3.
 1950 MITCHELL-FOX, Mrs. E. M. ; Tresawle, Wheatridge Lane, Livermead, Torquay, Devon.
 1951 MOFFIT, C. ; 3 Hartley Avenue, Monkseaton, Northumberland.
 1953 MØLLER, A. ; Christen Kolds Alle, Kastrup, Denmark.
 1926 MOODY, A. F. ; Lilford, Oundle, Peterborough.
 1949 MOODY, H. ; 91 Barbara Avenue, Uppingham Road, Leicester.
 1950 MOORE, J. T. ; 17 Gold Street, Wellingborough, Northants.
 1928 MOORE, ROBERT T. ; Sunny Gables, 582 Meadow Grove Place, Flint-ridge, Pasadena 3, Calif., U.S.A.

- 1953 MORELLI, MRS. C. P. ; Route 1, Everson, Washington, U.S.A.
 1949 MORNY, C. J. ; 52 Draycott Place, London, S.W. 3.
 1931 MORRISON, A. R. G., F.Z.S., M.B.O.U. ; Sarikei, Sarawak.
 1947 MOSFORD, FRANK ; The Elms, Churton Heath, Saughton, Nr. Chester.
 1927 MOTT, B. ; The Croft, Bittell Road, Barnt Green, Worcs.
 1929 MOTTERSHEAD, G. S., F.Z.S. ; Zoological Gardens, Chester.
 1923 MOUNTAIN, Capt. WALTON ; Groombridge Place, Groombridge, Kent.
 1949 MUNDEN, N. J. ; 81 Wilmer Lodge, Epsom Road, Guildford, Surrey.
 1952 MURRAY, G. T. ; 821 Buchanan Street, Gary, Indiana, U.S.A.
 1947 MURRAY, H. ; Bracken, Cornsland, Brentwood, Essex.
 1952 MURRAY, J. B. ; c/o Messrs. Bovril, Ltd., 123 Chaussée de Mons, Brussels, Belgium.
 1939 MURRAY, RAY J. ; 12 High Road, Camberwell, E. 6, Victoria, Australia.
 1949 MURRAY, SAMUEL, F.Z.S. ; 18 Somerset Gardens, Lewisham, S.E. 13.
 1926 *McCULLAGH, Sir CRAWFORD, Bart. ; Lismara, Whiteabbey, Belfast, N. Ireland.
 1950 MCGOWAN, H. ; 13 Robertson Way, Ash, Aldershot, Hants.
 1953 McHALE, J. P. ; 1526 W. Highland Avenue, Chicago 26, Ill., U.S.A.
 1952 MACINTOSH, D. G. ; Reiffer Park, Sorbie, Newton-Stewart, Wigtownshire.
 1950 McKENZIE, D. L. ; The New Inn, Winchelsea, Sussex.
 1952 MACTAVISH, J. A. ; "Forrest Bank," 20 Damdale, Peebles, Scotland.
 1934 NAETHER, Professor CARL ; 4442 Woodman Avenue, Sherman Oaks, California, U.S.A.
 1952 NEWELL, J. P., Ph.C., M.P.S.I., D.Opt., M.I.O.S. ; 4 Pearse Street, Athlone, Ireland.
 1930 NEWILL, D. S., M.D. ; Box 634, Connellsville, Pa., U.S.A.
 1953 NEWLAND, R. A. ; 93 Arne Avenue, Parkstone, Dorset.
 1951 NEWMAN, I. N. ; 71 Queens Road, Watford, Herts.
 1931 NICHOLSON, N. ; Edenvale, 16 Weardale Place, Stockton-on-Tees.
 1950 NICHOLSON, W. ; 15 Neville Road, Darlington.
 1947 NICOULLAUD, J. G. ; 48 rue Descartes, Chinon, France.
 1950 NIXON, JOSEPH ; 5 Bank Street, Carlisle.
 1947 NOBLE, R. A. W. ; Little Grange, Canterbury Road, Margate, Kent.
 1948 NOORDZIJ, J. H. ; Burg. Visserpark 13, Alphen a/d Rijn, Holland.
 1949 NOREEN, GEORGE W. ; Route 3—Box 219, Bothell, Washington, U.S.A.
 1939 NORRIS, KENNETH A., F.Z.S., M.B.O.U. ; Elmstone, 45 Highfield Road, Purley, Surrey.
 1951 NOURSE, DUDLEY ; "Content," 4 Earlswood Place, Durban North, Natal, South Africa.
 1953 OAKES, J. H. ; 93 Robinet Road, Beeston, Nottingham.
 1950 OLIVER, JOHN W. ; R.1. Box 606, Encinitas, Calif., U.S.A.
 1950 OLIVIER, GEORGES, F.Z.S., M.B.O.U. ; 6 rue Ch.-Flavigny, Elbeuf (Seine Inférieure), France.
 1945 OLSON, LEO B. ; 835 South First Street, De Kalb, Illinois, U.S.A.
 1952 OLSSON, C. J. ; Erik Dahlbergsgatan 19, Gothenborg, Sweden.
 1928 OSTREHAN, CLEMENT ; Kington Rectory, Worcester.
 1947 OVEREND, Miss EUNICE ; 49 Alexandra Road, Frome, Somerset.
 1953 OVERLANDER, D. ; Austrasse 17, Bad Honnef/Rhein, Germany.
 1953 OZANNE, H. W. H. ; Istambool Lodge, La Ramée, St. Peter Port, Guernsey.
 1944 PALMELLA, His Excellency the Duke of, F.Z.S. ; 116 Rua Escola Polytechnica, Lisbon, Portugal.

- 1951 PALMER, C. L. ; 102 Paston Lane, Peterborough.
- 1953 PALMER, E. T. ; 4595 Picton Street, Vancouver 16, B.C., Canada.
- 1906 PAM, Major ALBERT, O.B.E., M.A., F.L.S., F.Z.S. ; Wormleybury, Broxbourne, Herts.
- 1950 PANTING, PETER J., B.Sc. ; " Belle Vue," Main Street, Goodwick, Pems.
- 1950 PARFITT, Sgt. N. D. ; Sgt.'s Mess, 66th Trg. Regt. R.A.C., Catterick Camp, Yorks.
- 1953 PARKER, N. ; Stoneleigh, Scotts Lane, Wilbarston, Nr. Market Harborough.
- 1950 PARREN, RONALD J. ; Lindon House, South Brink, Wisbech, Cambs.
- 1952 PARTRIDGE, P. B. ; 164 Waverley Avenue, Twickenham, Middx.
- 1934 PARTRIDGE, W. R., F.Z.S. ; The Bungalow, Lower Haseler, Nr. Evesham, Worcs.
- 1952 PATON, T. ; " St. Quentins," Stoneyburn, By Bathgate, West Lothian.
- 1952 PATTEN, R. A. ; Box 1, Post Office, Mosman, Sydney, N.S.W., Australia.
- 1949 PAYN, Major W. H., M.B.E., M.B.O.U. ; Hartest Place, Bury St. Edmunds, Suffolk.
- 1950 PAYNE, C. M. ; Sherbourne Priors, Warwick.
- 1951 PEARSON, J. C. ; 63 St. Michael's Road, Aldershot, Hants.
- 1946 PEARSON, RAYMOND ; 179 West Auckland Road, Darlington, Co. Durham.
- 1951 PEASE, Mrs. S. ; R.D. 4, North Harmony Road, Freehold, N.J., U.S.A.
- 1940 PEAT, RODERICK M., F.Z.S. ; 11 Ironmonger Lane, London, E.C. 2.
- 1953 PERRY, J. A. W. ; 14 New Way, Pinelands, Nr. Cape Town, S. Africa.
- 1948 PHILLIPS, Mrs. A. ; 3 Pond Road, Blackheath, S.E. 3.
- 1935 PHIPPS, Mrs. L. N., F.Z.S., M.B.O.U. ; The Manor House, Minster Lovell, Oxon.
- 1903**PICKFORD, RANDOLPH JOHN ; c/o The Manager, Midland Bank Ltd., 629 Attercliffe Road, Sheffield 9.
- 1948 PINFIELD, S. N. ; 95 Pinfold Lane, Penn, Wolverhampton.
- 1934 PITT, W. S. ; Wildwood, Silverdale Avenue, Walton-on-Thames, Surrey.
- 1952 PLANT, J. J. ; 67a Chestergate, Macclesfield, Cheshire.
- 1924 PLATH, KARL ; 305 S. Cuyler Avenue, Oak Park, Illinois, U.S.A.
- 1947 PODMORE, C. R. ; 352 Carter Knowle Road, Ecclesall, Sheffield 11.
- 1949 POHLE, HORST C. ; Fichtestrasse 7, Bayreuth, Germany.
- 1937 POLAK, Dr. A. C. ; Spoorstraat 15, Amersfoort, Holland.
- 1925 POLTIMORE, Lady ; Benwell, P.O. Box 6, Bindura, Southern Rhodesia.
- 1950 PORTER, J. E. ; West Leigh, 17 Newminster Road, Fenham, Newcastle-upon-Tyne 4.
- 1920 PORTER, SYDNEY, F.Z.S., M.B.O.U. ; The White Gates, 149 Stenson Road, Derby.
- 1914 POTTER, BERNARD E., M.B., M.R.C.S., L.R.C.P., F.Z.S. ; 39 Devonshire Place, London, W. 1.
- 1952 PREAN, Mrs. N. ; North Luffenham Hall, North Luffenham, Rutland.
- 1928 PRESTWICH, ARTHUR A. ; 61 Chase Road, Oakwood, N. 14.
- 1946 PRESTWICH, Mrs. J. A. ; Coltishall, Broad Walk, Winchmore Hill, N. 21.
- 1951 PRIEST, Dr. A. A. ; 434-6 Acheson Building, 2131 University Avenue, Berkeley 4, Calif., U.S.A.
- 1952 PRUVOST, E. ; Glenwood Farm, Hempstead, Gillingham, Kent.
- 1943 PUGH, M. C. ; 18 Beech Road, Monmouth, Mon.
- 1953 PUNTER, W. H. ; Rangers Cottage, Hyde Park, W. 2.
- 1953 PYE, Brigadier RANDALL, D.S.O. ; Avenings Farm, Danehill, Sussex.
- 1948 QUENBY, H. F. ; " Standard " House, High Street, Baldock, Herts.
- 1913 QUINCEY, R. S. DE Q., F.Z.S. ; The Vern, Bodenham, Hereford.

- 1953 RAATH, J. F. ; P.O. Box 63, Langlaagte, Transvaal, S. Africa.
 1948 RABBIN, HILBERT J., I.S.O. ; 33 Kingsway, Wembley.
 1949 RAGAN, CALVIN ; P.O. Box 7, Bell, California, U.S.A.
 1953 RANDLE, G. ; 34 Eastfield Avenue, Weston, Bath, Somerset.
 1943 RANKIN, Lieut.-Col. N., F.R.G.S., F.R.P.S. ; House of Treshnish, Calgary, Isle of Mull, Argyll, Scotland.
 1950 RATH, JOSEF ; Moosburger Strasse 3, Pfaffenhofen-Jlm (Oberbayern), Germany.
 1939 RAVEN, WILLIAM H., O.B.E. ; The Mill House, Newbold-on-Stour, Nr. Stratford-on-Avon.
 1950 RAYMAEKERS, L. ; 71 Avenue Molière, Brussels, Belgium.
 1947 REAY, J. H. ; Cranmore, The Close, Hillingdon, Middx.
 1950 REED, Mrs. E. CAROLINE WARMINGTON ; Weald's Gate, Wadhurst, Sussex.
 1953 REED, Mrs. H. F. ; 2312 So. Buckner Blvd., Dallas, Texas, U.S.A.
 1950 REES, D. W. ; 79 King's Road, Canton, Cardiff, S. Wales.
 1950 REES, FRED ; Leckford, Stockbridge, Hants.
 1939 REID, Miss MARION C. ; c/o Messrs. John Reid, Ltd., Walt Street, Newcastle, N.S.W., Australia.
 1951 REID-HENRY, D. M. ; 43 West View Drive, Woodford Green, Essex.
 1951 RENDELL, R. G. ; 60 Guinions Road, High Wycombe, Bucks.
 1952 RETIEF, J. E. ; 56 Lincoln Street, Bellville, Cape Province, South Africa.
 1928 REVENTLOW, AXEL, C.M.Z.S. ; Zoologisk Have, København F., Denmark.
 1953 REYNAL, E. ; 221 East 49th Street, New York, N.Y., U.S.A.
 1946 RICARDO, Mrs. MARY C. ; Audreys, Burghfield Common, Reading, Berks.
 1950 RICH, JOSEPH W. ; 1073 West 11th Street, San Pedro, Calif., U.S.A.
 1953 RICHARDS, E. ; 5 West Lane, Pengelly, Delabole, N. Cornwall.
 1949 RICHARDSON, JAMES ; 101 Stockton Lane, York.
 1953 RIDLEY, C. T. ; Birdwarren Farm, Varsity View P.O., Charleswood, Manitoba, Canada.
 1948 RIIS-HANSEN, KAI ; Nørre Alle 75, Glostrup, Denmark.
 1937 RIPLEY, S. DILLON, Ph.D., M.B.O.U. ; Kilravock, Litchfield, Conn., U.S.A.
 1935 RISDON, D. H. S. ; The Dudley Zoological Society, Dudley, Worcs.
 1943 ROBERTSON, Dr. A. R. ; P.O. Box 95, Kroonstad, O.F.S., South Africa.
 1951 ROBERTSON, J. M. ; Rosearden, 10 Petrie Crescent, Elgin, Morayshire.
 1947 ROBINSON, B. E. ; Field House, Blackborough Road, Reigate, Surrey.
 1951 ROBINSON, G. E. ; 487 Little Horton Lane, Bradford.
 1953 ROBINSON, H. A. ; 903 Arcadia Avenue, Arcadia, Calif., U.S.A.
 1927 ROBISON, A. W. ; 125 Maiden Lane, San Francisco 8, Calif., U.S.A.
 1953 RODEN, Miss L. B. ; Buckles, Burwash Common, Sussex.
 1952 RODGERS, J. ; Balland House Cottage, Ashburton, Devon.
 1951 ROLPH, W. ; Undley Lodge, Lakenheath, Suffolk.
 1945 ROONEY, JAMES P., M.B.O.U. ; 1514 South 12th Avenue, Yakima, Washington, U.S.A.
 1946 ROOTE, CYRIL C. ; 116 Cardinal's Walk, Scraptoft Lane, Leicester.
 1953 ROTERS, J. ; Elk Lumber Co., Box 170, Temiskaming, Quebec, Canada.
 1952 ROUÉ, H. ; L'Astrée, Boulevard du Théâtre, Chambéry, Savoie, France.
 1951 ROYDEN, T. W. E. ; Broad House, Fleggburgh, Norfolk.
 1952 RUDKIN, F. H., Jr. ; 3rd and Fillmore Streets, Fillmore, California, U.S.A.
 1950 RUSSELL, BARNABAS, F.R.S.A., F.Z.S., F.R.H.S. ; 20 Bucklersbury, Hitchin, Herts.
 1952 RYAN, C. J. ; 515 Madison Avenue, New York 22, N.Y., U.S.A.
 1927 RYCROFT, Mrs. VIOLET ; Grey Gables, Cirencester, Glos.

- 1951 SALTERI, D., F.Z.S. ; 44 Montrose Terrace, Edinburgh 7.
 1953 SANDS, W. M. ; 12 Rothbury Gardens, Adel, Leeds 6.
 1945 SAUNDERS, RONALD, F.Z.S. ; Regent Parade, Sycamore Road, Amersham, Bucks.
 1950 SAWDEN, M. ; Farm House, H.M.B.I., Feltham, Middx.
 1949 SAWYER, R. C. J., F.Z.S. ; 226 Haggerston Road, London, E. 8.
 1953 SCAMELL, Mrs. K. M. ; 1 Marine Crescent, North Drive, Great Yarmouth.
 1949 SCHNEIDER, P. E. ; 5113 No. Acacia Street, San Gabriel, Calif., U.S.A.
 1951 SCHUMACHER, Mrs. H. L. ; 7027 Sycamore Avenue, Seattle 7, Washington, U.S.A.
 1914 SCHUYL, D. G. ; Kralingscheweg 332, Rotterdam O, Holland.
 1934 SCOTT, A. H., F.Z.S. ; Abbotswell, Frogham, Fordingbridge, Hants.
 1938 *SCOTT, PETER, C.B.E., D.S.C., M.A., F.Z.S., M.B.O.U. ; The New Grounds, Slimbridge, Gloucestershire.
 1952 SCOTT, R. A. ; 1 Lambton Road, Broadmeadow, N.S.W., Australia.
 1928 SCOTT-HOPKINS, Capt. C., F.Z.S. ; Knoll House, Shiplake, Oxon.
 1951 SCROGGIN, J. B. ; Helotes, Texas, U.S.A.
 1951 SEAGO, J., F.Z.S. ; Hall Common, Ludham, Norfolk.
 1951 SEARS, JOHN L. ; Reel Hall, Shamley Green, Guildford, Surrey.
 1951 SEATON, Major C. P. H. ; 62 Picardy Road, Belvedere, Kent.
 1952 SENNETT, R. S. ; 354 Concord Avenue, Toronto 4, Canada.
 1953 SEWELL, W. A. ; Pleasley Road, Skegby, Nr. Mansfield.
 1951 SHAFFER, B. ; 3006 South West Temple, Salt Lake City, Utah, U.S.A.
 1952 SHARP, H. F. ; (Address unknown.)
 1932 SHEARING, A. P. ; The Aviaries, Foxwarren Park, Cobham, Surrey.
 1951 SHELLIM, Dr. M. A. ; 7 Middleton Mansions, Calcutta 16, India.
 1952 SHELTON, W. E. ; "Elgar," St. John's Road, Newbold, Chesterfield.
 1953 SHOLAR, Dr. N. P., D.D.S. ; Box 265, Mooresville, N.C., U.S.A.
 1953 SHONAMAN, W. ; 1890-21 Avenue, New Westminster, B.C., Canada.
 1950 SHORNEY, E. G. ; 15 Sandall Close, Ealing, W. 5.
 1949 SHORTMAN, H. K. W., F.Z.S. ; 45 Commercial Street, Newport, Mon.
 1946 SIBLEY, A. E., F.Z.S. ; 15 Windsor Crescent, Harrow, Middx.
 1934 SIBLEY, C. L. ; Sevenfires, 111 Main Street, Nantucket, Mass., U.S.A.
 1953 SIMÕES, J. F. ; 5 Largo Conde, Barão, Lisboa, Portugal.
 1924 SIMPSON, H. W. ; 6 Barry Road, Stonebridge, Willesden, N.W. 10.
 1937 SIMPSON, Mrs. M. K. M. ; The Hollies, Limekilns, Dunfermline, Fife.
 1947 SLADER, W. T., J.P. ; Pentillie, Honiton Road, Exeter.
 1954 SMART, T. E. ; Castlemead, Tenbury Wells, Worcs.
 1952 SMITH, A. J. ; 11 High Street, Nairn, Scotland.
 1941 SMITH, E. WILFORD ; "Lynwood," 15 Kingsway Road, Leicester.
 1947 SMITH, KENNETH J. ; Paignton Zoological Gardens, Paignton, Devon.
 1952 SMITH, S. ; c/o Henry Sotheren, Ltd., 2-5 Sackville Street, Piccadilly, London, W. 1.
 1952 SMITH, S. H. ; 10 South Bay Road, Repulse Bay, Hong Kong.
 1952 SMITH T. ; 46 Millburn Street, Crook, Co. Durham.
 1917 SMITH, W. PROCTER, F.Z.S. ; Bexton House, Knutsford, Cheshire.
 1953 SNAZLE, H. A., M.B.E. ; Chessington Zoo, Ltd., Leatherhead Road, Chessington, Surrey.
 1946 SOANES, ARTHUR C. ; The Fishery Inn, Elstree, Herts.
 1950 SOAR, E. R. ; 50 Harvey Road, West End Road, Greenford, Middx.
 1951 SOUTH, E. A. ; P.O. Box 487, Colusa, Calif., U.S.A.
 1949 SPACKMAN, G. DONALD, Jr. ; Hill Farm, Coatesville, Penna., U.S.A.

- 1952 SPEED, Mrs. D. A. ; 925 Clinton Avenue, Fresno, California, U.S.A.
 1951 SPEEL, C. ; Saxenburgerweg 9, Bloemendaal, Holland.
 1954 SPENCE, J. M. ; "Jenh," Woodley Road, Plumstead, Cape Town, S. Africa.
 1952 SPENCE, T., M.R.C.V.S. ; Dunbog, Newburgh, Fife, Scotland.
 1953 SPILSBURY, D. T. ; 12 Hill View, Upper Howsell Road, Malvern Link, Worcs.
 1923 SPRAWSON, Professor Evelyn, M.C., D.Sc., M.R.C.S., F.Z.S. ; Cranford, Welcomes Road, Kenley, Surrey.
 1923 SPURWAY, N. B. ; "The Hermitage," Oadby, Leicestershire.
 1939 SQUIRE, E. O. ; Basmead Manor, St. Neots, Hunts.
 1939 STEINBECK, J. W. ; P.O. Box 832, Concord, California, U.S.A.
 1952 STEPHENSON, E. ; 11 Sebastopol Terrace, Bowden Close, Nr Crook, Co. Durham.
 1953 STEVENS, A. ; 56 Gwencole Crescent, Braunstone, Leicester.
 1953 STEVENS, K. ; 45 Britwell Road, Wylde Green, Birmingham.
 1932 STEVENS, RONALD ; Walcot Hall, Lydbury North, Shropshire.
 1953 STEWART, T. ; 33 Jeffrey Avenue, Parkfields, Wolverhampton, Staffs.
 1953 STIVEN, H. ; 26 Park View, Lochgelly, Fife, Scotland.
 1952 STODDART, R. W. ; 26 Owston Road, Carcroft, Doncaster, Yorks.
 1922 STOKES, Capt. H. S., M.C., F.Z.S. ; Longdon, Rugeley, Staffordshire.
 1953 STONE, M. B., Jr. ; Martin's Pond Road, Groton, Mass., U.S.A.
 1952 STONE, R. ; 612 Romford Road, Manor Park, E. 12.
 1928 STORMONTH-DARLING, P. ; 7 Egerton Court, Harrington Road, London, S.W. 7.
 1951 STRAIGHT, WHITNEY, C.B.E., M.C., D.F.C. ; The Aviary, Windmill Lane, Southall, Middx.
 1948 STRANGE, FRANK E. ; P.O. Box 207, Redondo Beach, California, U.S.A.
 1953 STREMIC, G. W. ; 150 Berkley Road, Glenside, Pa., U.S.A.
 1948 STRETCH, H. ; 119 Wilton Road, Salisbury.
 1950 STROMBERG, D. ; "The Aviary," 57 Elgin Road, Seven Kings, Essex.
 1930 STROMBI, Miss DORA A. ; Eastbank House, Brechin, Angus.
 1949 STRUTT, Hon. PETER A. ; Bentley Park, Ipswich, Suffolk.
 1950 STURGIS, A. F. ; 740 Sansom Street, Philadelphia 6, Pa., U.S.A.
 1952 SUNDSTRÖM, Miss BRITT-MARIE ; Östra Larmgatan 3, Gothenburg, Sweden.
 1952 SUTTON, J. W. C. ; The Patch, Salthouse, Holt, Norfolk.
 1938 SUTTON, PETER, M.R.C.V.S. ; 11 Culverden Park Road, Tunbridge Wells.
 1951 SVANE, C. H. ; Frederikssundsvej 168, Brønshøj, Copenhagen, Denmark.
 1950 SVOBODA, Dr. BEN J. ; 1400 E. Olive Street, Compton I, Calif., U.S.A.
 1902*SWAN, J. A., F.Z.S. ; Hazel Mere, Rectory Lane, Sidcup, Kent.
 1950 SWAN, Mrs. J. A. ; Hazel Mere, Rectory Lane, Sidcup, Kent.
 1951 SWANEPOEL, P. ; Central Service Station, Warden Street, Harrismith, O.F.S., S. Africa.
 1948 SYKES, JOSEPH ; 167 North High Street, Musselburgh, Scotland.

 1950 TAGER, I. ; P.O. Box 40, Parys, O.F.S., S. Africa.
 1953 TAMBLYN, S. A. ; "Penlaurel," South Petherwyn, Launceston, Cornwall.
 1946 TANCRED, P. H. ; 19 Hardy Street, Ashfield, Sydney, N.S.W., Australia.
 1946 TAYLOR, JAMES, M.B.O.U. ; Lower Hilcot, Withington, Cheltenham, Glos.
 1952 TAYLOR, R. A., F.Z.S. ; 182 Lambeth Walk, London, S.E. 11.
 1945 TAYLOR, T. G., M.A. ; 16 Derby Road, Caversham, Reading.
 1930 TEAGUE, P. W. ; Rowlestone, Teignmouth Road, Dawlish, Devon.

- 1954 TEMBLETT, H. ; c/o Springfield Colliery, P.O. Redan, S. Africa.
 1926 TENNANT, HON. STEPHEN ; Wilsford Manor, Salisbury.
 1950 TENNEY, Mrs. EDNA ; Star Route, San Marcos Pass, Santa Barbara, Calif., U.S.A.
 1946 TERRY, Miss MARGUERITE ; Lumeah, Boulivot, Grouville, Jersey, Channel Islands.
 1952 THEAKER, J. N. ; The Grove, Swadlincote, Nr. Burton-on-Trent.
 1952 THEUNISSEN, S. ; 19 McGhee Street, Sale, Victoria, Australia.
 1949 THOMAS, A. E. ; Burnt House, Chigwell, Essex.
 1931 THOMAS, F. E. ; Barnfield, Dunsfold, Surrey.
 1949 THOMAS, RAY ; 1601 South Hope Street, Los Angeles 15, Calif., U.S.A.
 1950 THOMPSON, LLOYD B. ; 2010 Cliff Avenue, North Burnaby, Vancouver, B.C., Canada.
 1946 *TINSLEY, PATRICK C. ; Hurn Hall, Holbeach, Spalding, Lincs.
 1946 *TINSLEY, WILLIAM G. ; The Poplars, Holbeach, St. Marks, Lincs.
 1952 TOLLEMACHE, Major J. E. H., M.C. ; Helmingham Hall, Stowmarket, Suffolk.
 1950 TONG, E. H. ; Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
 1951 TREVISICK, C. H., F.Z.S. ; Ilfracombe Zoo Park, Comyn Hill, North Devon.
 1951 TRISE, H. R. ; 89 Dover Road, Copnor, Portsmouth.
 1952 TROUBRIDGE, Lady ; Middle Oakshott, Hawkley, Liss, Hants.
 1947 TUCKWELL, DAVID ; Asliesk, Alves by Forres, Morayshire.
 1933 TUMA, F. L. ; Limhamnsvagen 12A, Malmö, Sweden.
 1939 TUNESI, A. W. ; Elmside, 93 Vicarage Road, Sunbury-on-Thames, Middx.
 1928 TURNER, H. B. ; Malverleys, Nr. Newbury, Berks.
 1930 *TURNER, WALTER H. ; 15 Sutherland Road, Chatswood, N.S.W., Australia.
 1934 TYEBJEE, ABDE AMIRUDIN SHALEBHOY ; Malabar Court, Ridge Road, Malabar Hill, Bombay 6, India.
- 1946 UNDERWOOD, A. J. ; 24 Wellington Street, Kettering, Northants.
 1952 UPSON, J. W. ; 1 Golden Lion Lane, Harwich, Essex.
- 1954 VADEN, J. M. ; 2533 S. 3rd Street, Abilene, Texas, U.S.A.
 1951 VAN APeldoorn, A. G. ; "Het Soerel," Heerde, Holland.
 1949 VAN DEN BERGH, WALTER, C.M.Z.S. ; Société Royale de Zoologie d'Anvers, 26 Place Reine Astrid, Antwerp, Belgium.
 1953 VAN DEN BRINK, G., Jr. ; "Avifauna" Park, Alphen a.d. Rijn, Holland.
 1953 VAN DER MARK, R. R. P. ; Koningin Wilhelminalaan 2, Amersfoort, Holland.
 1953 VAN DER MERWE, Dr. J. J. A. ; P.O. Box 36, Bellville, C.P., S. Africa.
 1950 VAN DIJK, H. C. ; Fabriekstraat 6, Tilburg, Holland.
 1948 VAN DIJK, H. J. ; Animali, Eindhoven, Holland.
 1950 VAN DIJK, N. ; Bisschop Aelenstraat 50, Tilburg, Holland.
 1937 VANE, E. N. T., F.Z.S., M.B.O.U. ; Fairacre, Chiltern Road, Ballinger, Gt. Missenden, Bucks.
 1934 VAN HEYST, A. F. C. A. ; Koningin Wilhelminalaan 30, Amersfoort, Holland.
 1950 VAN LEEUWEN, J. DOCTERS ; Hoveniersweg 37, Tiel, Holland.
 1953 VAN OOSTEN, J. R. ; 2065 Oak Knoll Ave., San Marino 9, Calif, U.S.A.
 1951 VAN VOLLENHOVEN, P. ; Burgem Knappertlaan 128, Schiedam, Holland.

- 1951 VAN WACHEM, R. H. ; Joh. Geradtsweg 44, Hilversum, Holland.
- 1947 VEITCH, Capt. R. W., M.B.E., B.Sc. ; Redridge, Garforth, Nr. Leeds.
- 1928 VIERHELLER, GEORGE P. ; St. Louis Zoological Park, St. Louis 10, Mo., U.S.A.
- 1947 VINSON, MARK ; The Beeches Farm, Cowden, Edenbridge, Kent.
- 1936 VOY, Miss HILDA ; Lynchets, Longbridge Deverill, Warminster, Wilts.
- 1948 VUCOVICH, PAYSON ; Rte. 5, Box 846, Hanford, California, U.S.A.
- 1948 WADDAMS, W. LAWSON ; 34 Thurlston Avenue, Sheldon, Birmingham 26.
- 1947 WAIT, F. R., F.Z.S. ; Bridge House, Hemsby, Nr. Great Yarmouth, Norfolk.
- 1952 WAITE, J. ; 6 Attwood Street, Kidsgrove, Staffs.
- 1948 WAKEFIELD, Mrs. C. H. ; 139 Senic Drive, Palomar Park, Redwood City, California, U.S.A.
- 1953 WALKER, N. S. ; Farthing Green, Farthing Green Lane, Stoke Poges, Bucks.
- 1953 WALKER, P. T. ; Dan-y-Bont, Gilwern, Nr. Abergavenny, Mon.
- 1936 WALLER, H., F.Z.S. ; Oldway, Pilgrims Way, Westhumble, Dorking, Surrey.
- 1951 WALLIN, Mrs. O. H. ; 11543-36 N.E., Seattle 55, Washington, U.S.A.
- 1951 WALMSLEY, J. H. ; 50 Athlone Street, Mount Pleasant, Port Elizabeth, C.P., S. Africa.
- 1952 WARD, Mrs. M. K. ; Dilhorne House, Dilhorne, Stoke-on-Trent.
- 1952 WARING, S. D. ; 13 Oakhill Road, Maghull, Nr. Liverpool, Lancs.
- 1935 WARRE, Mrs. PHILIP ; Coppid Hall, Stifford, Essex.
- 1952 WASTELL, C. H. ; "Mon Abri," Stapleford Abbots, Essex.
- 1932 WATKINS, T. R. HOLMES ; Oronsay, The Ellipse, Griffithstown, Mon.
- 1953 WATSON, A. ; 24 River Street, Brechin, Angus, Scotland.
- 1950 WATSON, J. K. ; Doonholm, P.O. Box 757, Nairobi, Kenya Colony.
- 1950 WATTS, R. A. ; 49 Midland Road, Wellingborough, Northants.
- 1913 WAUD, Capt. L. REGINALD, F.Z.S., M.B.O.U. ; Bradley Court, Chieveley, Nr. Newbury, Berks.
- 1933 WEAVER, GEORGE, F.Z.S. ; 77 Offmore Road, Kidderminster, Worcs.
- 1929 WEBB, P. B. ; Barney's Brae, Randalstown, Co. Antrim.
- 1935 WEBBER, LEONARD C. ; 6 Grand View Parade, Epping, N.S.W., Australia.
- 1937 *WEBER, ORLANDO F., Jr. ; 22 East 82nd Street, New York, U.S.A.
- 1950 WEINMAN, Major A. N., M.B.E., C.M.Z.S. ; The Zoological Gardens of Ceylon, Allan Avenue, Dehiwela, Colombo, Ceylon.
- 1942 WENKE, FRANCIS L. ; 115 N. 20th Street, Olean, N.Y., U.S.A.
- 1947 WEST, DAVID ; 209 N. 18th Street, Montebello, California, U.S.A.
- 1932 WHARTON-TIGAR, Mrs. N., F.Z.S. ; The Highlands, Manston, Nr. Ramsgate.
- 1951 WHATLEY, E. C. ; Wonston Manor Cottages, Sutton Scotney, Nr. Winchester, Hants.
- 1950 WHEATLEY, Mrs. GRACE, R.W.S., F.Z.S. ; Heathfield House, Windmill Road, Wimbledon Parkside, S.W. 19.
- 1947 WHEELER, T. E. ; Lynwood, Onslow Avenue, Cheam, Surrey.
- 1947 WHEELER, Mrs. T. E., F.Z.S. ; Lynwood, Onslow Avenue, Cheam, Surrey.
- 1953 WHISTON, W. ; "Lothersdale," Far Heath, Winterley, Sandbach, Cheshire.
- 1953 WHITE, R. I. ; 786 Geary Street, Apt. 401, San Francisco, Calif., U.S.A.
- 1953 WHITEHOUSE, N. V. ; 185 George Street, Brisbane, Australia.
- 1953 WHITFORD, T. B., F.Z.S. ; Bridge Road, Chessington, Surrey.
- 1923 *WHITLEY, HERBERT, F.Z.S., F.R.H.S., M.B.O.U. ; Primley Hill, Paignton, S. Devon.

- 1950 WHITMARSH, W. N. ; 28b John Street (rear), Porthcawl, Glam.
 1935 WHITMORE, G. E. ; 168 High Street, West Bromwich, Birmingham.
 1953 WICKS, Mrs. E. ; Silver Springs, Beaufort Road, St. Leonards-on-Sea, Sussex.
 1952 WHITSON, K. V. ; 9 Haig Avenue, Queenstown, South Africa.
 1924 WILDEBOER, Dr. H. ; "Burnbrae," Holderness Road, Hull, Yorks.
 1930 WILKINS, A. ; Rendcombe, Chesham, Bucks.
 1947 WILKINS, Miss DORA ; The Manor House, Brize-Norton, Oxford.
 1950 WILKINS, E. E. ; 60 Brentford Road, Kings Heath, Birmingham 14.
 1949 WILLEMS, Prof. Dr. A. E. R. ; Montereystaat 24, Ghent, Belgium.
 1907 WILLFORD, HENRY ; Sans Souci, Havenstreet, Ryde, Isle of Wight.
 1948 WILLIAMS, H. P. ; 2 Burcote Road, Pye Hayes, Birmingham 24.
 1905 WILLIAMS, SIDNEY, F.Z.S. ; Sea Crest, Nyewood Lane South, Bognor Regis, Sussex.
 1950 WILLIAMS, T. J. ; Cartref, Sylva Gardens North, Craig-y-Don, Llandudno, N. Wales.
 1945 WILLIAMSON, T. F. M. ; Benvenuto Avenue, Brentwood Bay, B.C., Canada.
 1951 WILLIS-FLEMING, Major D., F.Z.S. ; "Helvetie," Plymouth Road, Totnes, Devon.
 1951 WILLMOTT, J. D. ; Box 488, Mount Dora, Florida, U.S.A.
 1948 WILLISHER, Mrs. G. A. ; 37 Springfield Road, Thornton Heath, Surrey.
 1950 WILMOT, H., F.Z.S., M.R.I. ; c/o Midland Bank, Ltd., 340 West End Lane, London, N.W. 6.
 1939 WILSON, ALEX M. ; Middlemoor, Presteigne, Radnorshire.
 1927 WILSON, ANDREW, F.Z.S. ; 233 Argyle Street, Glasgow, C. 2.
 1948 *WILSON, CALVIN D., M.A. ; Tracy Aviary, Liberty Park, 589 East 13th South, Salt Lake City 4, Utah, U.S.A.
 1950 WILSON, G. ; Gladstone House, High Street, St. Neots, Hunts.
 1952 WILSON, T. ; 216 Blockhouse Bay Road, Avondale, S.W. 3, Auckland, New Zealand.
 1950 WINCH, R. F. ; Queen Charlotte Fisheries, Ltd., 610 Bidwell Street, Vancouver, B.C., Canada.
 1953 WINDECKER, Dr. W. ; Zoologischer Garten, Riehler Strasse 173, Köln-Riehl, Germany.
 1922 WINTER, DWIGHT ; 1160 Beechwood Blvd., Pittsburgh 6, Pa., U.S.A.
 1937 WITTING, R. C., F.R.G.S., F.Z.S., M.B.O.U. ; The Gables, West Horsley, Surrey.
 1951 WITTING, Mrs. R. C. ; The Gables, West Horsley, Surrey.
 1953 WOOD, G. ; 4 Ham Green Cottages, Wittersham, Nr. Tenterden, Kent.
 1951 WOOD, Miss G. J. ; Church Cottage, Tarvin, Nr. Chester.
 1945 WOOD, H. WALLACE ; Oak Hall, Hythe, Kent.
 1940 WOOD, J. A. ; 68½ Pitt Street, Sydney, N.S.W., Australia.
 1903**WORKMAN, WILLIAM H., F.Z.S., M.B.O.U. ; Lismore, Windsor Avenue, Belfast.
 1952 WORTHEN, G. ; 7500 West 2700 So. Street, Magna, Utah, U.S.A.
 1945 WRAGG, H. B. ; 131 Berridge Road East, Sherwood Rise, Nottingham.
 1950 WRIGHT, S. A., F.Z.S. ; 59 Ashridge Gardens, Palmers Green, N. 13.
 1952 WYLLIE, R., Jr. ; 20 Marchlands Avenue, Bo'ness, West Lothian.
 1947 YAEGER, LEWIS ; P.O. Box 761, Tempe, Arizona, U.S.A.
 1952 YARNELL, J. ; Barnack, Nr. Stamford, Lincs.
 1934 YEALLAND, JOHN, F.Z.S. ; The Zoological Society of London, Regent's Park, N.W. 1.

- 1932 YOUNGER, Mrs. L. ; 244 Cranmer Court, Sloane Avenue, S.W. 3.
 1953 YOUNGHUSBAND, R. ; Ghyll Mount, Ellenborough, Maryport, Cumberland.
 1953 ZABALDANO, J. B. ; 15702 E. Nelson Avenue, Puente, Calif., U.S.A.
 1951 ZEORLIN, R. V. ; 308 East Thomas, Seattle 2, Washington, U.S.A.
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LIST OF LIBRARIES, SCIENTIFIC INSTITUTIONS, AND
 ZOOLOGICAL SOCIETIES WHICH SUBSCRIBE IN ADVANCE
 FOR THE *AVICULTURAL MAGAZINE*

- CAMBRIDGE UNIVERSITY ; Department of Zoology, Newton Library, Downing Street, Cambridge.
 CARNEGIE DUNFERMLINE TRUST ; Abbey Park House, Dunfermline.
 CHICAGO NATURAL HISTORY MUSEUM ; Roosevelt Road and Lake Shore Drive, Chicago 5, Illinois, U.S.A.
 HARVARD UNIVERSITY ; Museum of Comparative Zoology Library, Oxford Street, Cambridge 38, Mass., U.S.A.
 MCGILL UNIVERSITY ; Redpath Library, McGill University, 3459 McTavish Street, Montreal, P.Q., Canada.
 METROPOLITAN BOROUGH OF SHOREDITCH ; Haggerston Public Library, 236 Kingsland Road, London, E. 2.
 OHIO STATE UNIVERSITY ; Department of Zoology and Entomology, Botany and Zoology Building, Columbus 10, Ohio, U.S.A.
 QUEBEC ZOOLOGICAL GARDENS ; Charlesbourg, P.Q., Canada.
 ROYAL ZOOLOGICAL SOCIETY OF SOUTH AUSTRALIA ; Zoological Gardens, Adelaide, S. Australia.
 SEATTLE PUBLIC LIBRARY, Seattle 4, Washington, U.S.A.
 SHEFFIELD CITY LIBRARIES ; Central Library, Surrey Street, Sheffield.
 SOCIÉTÉ ROYALE DE ZOOLOGIE D'ANVERS ; 26 Place Reine Astrid, Antwerp, Belgium.
 SOUTHPORT CORPORATION, CURATOR OF ; Hesketh Park, Southport.
 TARONGA ZOOLOGICAL PARK TRUST ; Box 20, P.O. Mosman, Sydney, N.S.W., Australia.
 TORONTO UNIVERSITY ; ROYAL ONTARIO MUSEUM OF ZOOLOGY, 100 Queen's Park, Toronto 5, Ontario, Canada.
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THE AVICULTURAL SOCIETY OF NEW ZEALAND

LIST OF AFFILIATED MEMBERS

- BAINTON, A. E. ; 73 Wildberry Street, Woolston, Christchurch, S.E.I., N.Z.
 BLAKEY, H. P. ; Broadway, Newmarket, Auckland, S.E. 1, N.Z.
 COLLINS, Mrs. C. ; 341 South Road, New Plymouth, N.Z.
 DEAL, J. R. ; National Art Gallery and Dominion Museum, Department of Internal Affairs, Government Buildings, Wellington, N.Z.
 HUTCHINSON, G. ROWLAND ; P.O. Box 770, Auckland, C.I., N.Z.

IRVINE, Mrs. M. R. ; 21 King Street, Dannevirke, N.Z.
MACLEAN, T. C. ; (Address unknown).
MCNEILL, C. ; P.O. Box 267, New Plymouth, Taranaki, N.Z.
MORAN, H. D. ; 78a Division Street, Riccarton, Christchurch, N.Z.
PORT, W. J. ; 18 Chaytor Street, Palmerston North, N.Z.
RANSTON, Dr. H. ; 34 Alexis Avenue, Mt. Albert, Auckland, S.W. 2, N.Z.
REID, G. ; "Grassington," Rotherham, N. Canterbury, N.Z.
ROBINSON, J. W. ; 2 Neill Street, Green Island, Otago, N.Z.
TAYLOR, F. G. ; Kairaki Beach, Canterbury, N.Z.
TYRRELL, R. J. ; 270 Kaikorai Valley, Dunedin, W. 2, N.Z.

THE AVICULTURAL SOCIETY OF SOUTH AUSTRALIA (ADELAIDE)

LIST OF AFFILIATED MEMBERS

CLYMA, M. ; 28 Avenue Road, Frewville, South Australia.
DUNSTONE, Dr. L. J. ; 30 Malvern Avenue, Malvern, South Australia.
FECHNER, C. ; 29 Woodville Road, Woodville, South Australia.
HAMILTON, Dr. Wm. ; 188 North Terrace, Adelaide, South Australia.
HUTCHINSON, W. J. ; Coulis Road, Athelstone, South Australia.
JUTTNER, Dr. F. ; Tanunda, South Australia.
MANFIELD, H. ; c/o Zoological Gardens, Adelaide, South Australia.
MCKECHNIE, R. ; 6 Eric Street, Plympton, South Australia.
SEPPELT, OSCAR ; 57 Northumberland Street, Tasmore, Adelaide, South Australia.
SEWELL, H. S. ; 12 Stannington Avenue, Toorak East, Adelaide, South Australia.
WRIGHT, R. ; Langdon Avenue, Clarence Park, South Australia.

Rules of the Avicultural Society

Last amended, 11th November, 1953.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object shall be the study of British and Foreign Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as the AVICULTURAL MAGAZINE, shall commence with the month of January and end on the 31st December following.

2.—The Avicultural Society shall consist of Ordinary, Life, Honorary Life Members, and Honorary Fellows, and the last shall be restricted in number to ten, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by Members of the Council in the manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Secretary-Treasurer, an Assistant Secretary, an Editor, and a Council of fifteen Members. The President, Vice-Presidents, Secretary-Treasurer, Assistant Secretary, and Editor shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing, and the name and address of every person thus proposed, with the name of the Member proposing him shall be published in the next issue of the Magazine. Unless the candidate shall within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five Members shall lodge with the Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more Members shall object to any candidate the name of such candidate shall be brought before the Council at their next meeting, and the Council shall have power to elect or to disqualify him from election.

5.—Each Member shall pay an annual subscription of £1, to be due and payable in advance on the 1st of January in each year; and, on payment of the subscription shall be entitled to receive all the numbers of the Society's Magazine for the current year. Life Member's fee, £15.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month, and forwarded, post free, *to all the Members who shall have paid their subscriptions for the year ; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Secretary-Treasurer.* Members whose subscriptions shall not have been paid as above by the first day in November in any year shall cease to be Members of the Society, but may be readmitted, at the discretion of the Council, on payment of the annual subscription.

8.—The Secretary-Treasurer, Assistant Secretary, and Editor shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case it shall be competent for the Council to nominate the same officer, or another Member, for a further term of five years, unless a second candidate be proposed by not less than twenty-five Members of at least two years' standing, as set forth below.

In the November number of the Magazine preceding the retirement from office of the Secretary-Treasurer, Assistant Secretary, and Editor, the Council shall publish the names of those members whom they have nominated to fill the vacancies thus created ; and these Members shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen Members of at least two years' standing. Such proposal, duly seconded and containing the written consent of the nominee to serve, if elected, in the capacity for which he is proposed, must reach the Secretary on or before the 15th of November.

9.—The Members of the Council shall retire by rotation, three at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and three other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the three Members recommended shall be printed in the November number of the AVICULTURAL MAGAZINE. Should the Council's selection be objected to by fifteen or more Members, these shall have power to put forward three other candidates, whose names, together with the signatures of not less than fifteen Members proposing them, must reach the Secretary *by the 15th of November.* The names of the six candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the three candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another Member in his place.

10.—Immediately after the election of the Council that body shall proceed to elect three from its Members. These three, together with the Secretary-Treasurer, Assistant Secretary, and Editor, shall form a Committee known as the Executive Committee.

The duties of the Executive Committee shall be as follows :—

(i) In the event of the resignation of any of the Officers during the Society's year, to fill temporarily the vacancy until the end of the year. In the case of the office being one which is held for more than one year (e.g. Secretary-Treasurer, Assistant Secretary, or Editor) the appointment shall be confirmed by the Council at its next meeting.

(ii) To act for the Council in the decision of any other matter that may arise in connection with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (three to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

(i) To add to or alter the Rules ;

(ii) To expel any Member ;

(iii) To re-elect the Secretary-Treasurer, Assistant Secretary, or Editor for a second term of office.

It shall not be lawful for the Treasurer to pay any account exceeding £10 unless such account be duly sanctioned by another Member of the Executive.

It shall be lawful for the Secretary-Treasurer or Editor to pledge the Society's credit for a sum not exceeding £100.

Should a Member wish any matter to be brought before the Council direct such matter should be sent to the Secretary with a letter stating that it is to be brought before the Council at their next meeting, otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or a majority of the Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Council to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Northern Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of hatching of the young, and furnish such evidence of the facts as the Council may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents. The question of awarding a Medal for the breeding of local races or sub-species of species that have already been bred shall be at the discretion of the Council. No Medal can be given for the breeding of hybrids.

The account of the breeding must be reasonably full so as to afford instruction to our Members, and must appear in the AVICULTURAL MAGAZINE before it is published or notified elsewhere. It should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

In every case the decision of the Council shall be final.

- The Medal will be forwarded to each Member as soon after it shall have been awarded as possible.

The Medal is struck in bronze (but the Council reserve the right to issue it in *silver* in very special cases) and measures $2\frac{1}{2}$ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words "The Avicultural Society—founded 1894". On the reverse is the following inscription: "Awarded to [*name of recipient*] for rearing the young of [*name of species*], a species not previously bred in captivity in the United Kingdom."

The Council may grant a special medal to any member who shall succeed in breeding any species of bird that has not previously been bred in captivity in Europe.

CANDIDATES FOR ELECTION

- L. ANDERSON, Brunsfield, Falkirk Road, Galashiels, Selkirk, Scotland. Proposed by R. C. J. Sawyer.
- G. W. BAKER, 18 Belvedere Avenue, Lancing, Sussex. Proposed by Miss K. Bonner.
- W. BAYLEY, 32 Clivedon Road, Tilehurst, Reading. Proposed by W. Hepwood.
- Mrs. E. J. BIRCHALL, "Valleyfield," Pipers Lane, Heswall, Cheshire. Proposed by J. H. Reay.
- A. DE CARVALHO MONTEIRO, Praça dos Restauradores 13-2°, Lisbon, Portugal. Proposed by A. A. Prestwich.
- Dr. R. CASTAN, 16 Brd. Président Fallières, Gabès, Tunisie. Proposed by A. A. Prestwich.
- W. A. DANECOURT, Hartley, Dartford, Kent. Proposed by Miss K. Bonner.
- G. C. N. DAVIES, P.O. Box 1155, Lourenco Marques, Portuguese East Africa. Proposed by A. A. Prestwich.
- T. DEAN, 35 George Street, Louth, Lincs. Proposed by Miss K. Bonner.
- J. DOLAN, 1469 West Avenue, Bronx 62, New York, U.S.A. Proposed by A. A. Prestwich.
- J. G. EASTMAN, Columbine Cottage, Domewood Estate, Copthorne, Nr. Crawley, Sussex. Proposed by Miss K. Bonner.
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AVICULTURAL MAGAZINE



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LINEOLATED PARRAKEETS.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
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JANUARY-FEBRUARY, 1954

BREEDING OF THE LINEOLATED PARRAKEET

(*Bolborhynchus lineola lineola*)

By A. A. PRESTWICH (Southgate, England)

The Lineolated or Lineated Parrakeet—possibly Barred Parrakeet is preferable—was first described and named *Psittacula lineola* by Cassin in 1853.

It appears to be by no means a common species, though of wide range: Peters gives its distribution as "Subtropical zone in the mountains of Central America from southern Mexico to western Panama", but being such a inconspicuous little bird it might easily be overlooked.

Very little seems to have been written about this parrakeet and what little has tells us almost nothing respecting its habits in the wild state.

O. Salvin (1871) writes: "Mr. Godman and I discovered a small flock in the Volcan de Fuego [Guatemala] at an elevation of about 8,000 feet above the sea-level. We saw them in a tree overhanging the track to Acatenango, above the Indian huts of Calderas, and succeeded in securing three of four specimens before the rest took fright and flew away."

Emmet Reid Blake (1953) in his recently published work, merely says: "A rare bird in Mexico, this species occurs only in dense forests at high altitudes."

This parrakeet has been imported spasmodically in small numbers. The Zoological Society of London received its first example in 1886; followed by two in 1889, and a fourth in 1895. Since then there have, of course, been a few others, and a couple or so were added to the collection during 1951-52.

Mr. D. Seth-Smith had a pair at one time, and writes: "It is somewhat delicate, and should never be subjected to a lower temperature than 60° Fahr." The Duke of Bedford says the same, but I believe

he is merely repeating Mr. Seth-Smith's observation and that it was not based on his own experience. The present writer wintered (1926-27) a pair in an unheated, well-sheltered aviary in the New Forest ; and last year two pairs were not taken in until mid-November, by which time there had been two or three light frosts. All last winter Mr. Vane kept a pair in an unheated bird-room and on several occasions the drinking water was frozen—they suffered no ill-effects. Mr. Norris, on the other hand, has two pairs that show signs of extreme discomfort when subjected to even a slight reduction of normal temperature. These experiences are somewhat inconsistent and it is perhaps best to play for safety and to take them in at the first sign of frost.

The plumage is not identical in the sexes, as is generally stated. The female is slightly smaller than the male and appears to be stouter in build. The rump is less strongly spotted with black ; all the black edges to the feathers are narrower, especially of the lesser wing-coverts ; the tail is wholly green, the feathers not being broadly tipped with black as in the male ; the beak hardly differs in form.

The Lineolated is slightly crepuscular in habits. In daytime it is usually quiescent, and "freezes" for long periods. It frequently perches lengthways on branches, and one is irresistibly reminded of a miniature Nightjar. It may be said to creep rather than walk : I do not remember ever seeing this bird actually walking on the ground. It is not generally realized how many psittacines prefer to sleep hanging head downwards ; the Lineolated decidedly has this preference.

During late 1951 and early 1952, possibly thirty pairs were imported. I rather fear that only about five or six survive to-day. Three pairs were secured for the "*Darenth-Hulme*" collection ; one pair died within a few days, but the four survivors did well and were put in an aviary from late spring until late autumn. Both pairs took possession of lovebird nest-boxes, but I think merely for use as dormitories, at any rate they made no attempt to breed.

On being returned to their aviary in 1953, both pairs immediately re-occupied nest-boxes. On several evenings both pairs were seen to indulge in what was apparently a form of courtship. A pair would stand facing one another, stretch vertically to the fullest possible extent, and with beaks interlocked remain in this position for a few moments. On no occasion was coition observed. This display gave cause to hope that one pair at least would nest in earnest. Owing to the secretive nature of these birds it was decided that should they nest it would be best to leave them entirely to their own devices, and not to interfere with their nesting in any way whatsoever. Consequently, it was not possible to determine the incubation period or to note the colour of the nest down.

One pair had four eggs but only hatched one ; the other three contained well-developed embryos. The parents, having only one young one to look after, reared it remarkably well. The young one, a male, is fully as large as its parents. The colour is rather paler than in an adult, the markings are less distinct, and there is a slight bluish tinge on the head.

The other pair had five eggs which they eventually deserted, when it was found that three were fertile and two clear. The nest-boxes had about an inch of peat moss placed in the bottom, otherwise the nests consisted of nothing apart from a few feathers.

These charming little parrakeets do very well on a mixture of canary, white millet, oats, and a little hemp. Soaked millet sprays are greatly relished, and soft, sweet apple is an essential part of their diet.

It is believed that this is a first *complete* success. Miss M. E. Baker, of Loughborough, had a young one leave the nest in 1913, but it was accidentally drowned. It is a little doubtful that it was fully independent of its parents and the event is usually considered an incomplete success.

Any member or reader knowing of any other breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

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NEWS FROM MY AVIARIES IN AMERICA AND EUROPE IN 1953

By J. DELACOUR (Los Angeles, California, U.S.A.)

One season has now elapsed since I gave an account of my Los Angeles aviaries. Some birds have been reared and new ones have been added. It was too early to expect anything from the ducks or the Palawan Peacock Pheasants, but a few Harlequins and Painted Quails have been reared by the parents. A pair of Diamond Doves produced five pairs of young, while only one young of the silver variety was raised ; there are also three young Mountain Witches, one Bartlett's Bleeding-heart, eight Brush Bronze-wings, all from one pair, and three Pigmy Doves. Interesting species have recently been added : Blue-headed and Ruddy Mountain Pigeons, from Cuba ; Moustache and Martinique Ruddy, the former never imported before, I think, and very attractive, as well as scarce in the West Indies, and some lovely Jobi Ground Pigeons from New Guinea, which used to breed so well at Clères.

Among the passerine birds, four Painted, three Bichenow's, and eight Long-tailed Grassfinches, three Diamond Sparrows, and two Cuban Finches were reared ; one pair each of grey, silver, and white Zebra Finches raised over forty young.

I keep adding a number of species to my small collection, and naturally I have had to build six more aviaries near the top of the garden : a block of three, each 11 × 5 feet ; another one of three, 9 × 3 feet. These useful little pens have a good shelter open to the south, and prove excellent. One contains various weavers, Parson, and Zebra Finches, a pair of Ruddy Mountain Pigeons, one of Peruvian Ground Doves, and Australian Swamp Quails. The next two are inhabited by various Australian finches, a pair of Yellow-winged Sugar Birds bred in a canary cage at the San Diego Zoo ; a pair of silver Diamond Doves, Blue-headed Pigeons, and Painted Quails. The three smaller compartments are dedicated to Gouldian Finches and Plumed Ground Doves ; Budgerigars of uncommon varieties, most of them from Clères, Mearn's, and Harlequin Quails, and Bleeding-heart Pigeons.

Some nine species have been added to the large flight over the stream ; a trio of Imperial Pheasants, reared in 1953 by Mr. Mackensen, who keeps a breeding pair for me ; a pair of the rare Hawaiian Ducks, kindly sent by Mr. Paul Breese, Director of Honolulu Zoo, four South African Jacanas, a pair of Hartlaub's Touracous, a Long-tailed Glossy Starling ; Australian Zosterops, Japanese Varied Tits, Australian Lapwings, Blue Scaly Quails, and a few other birds have been placed into other aviaries.

Circumstances have prevented this year my usual visit to Europe, but according to Mr. Fooks's reports, the birds at Clères are flourishing. A number of new species have been added, including Ocellated Turkeys presented by the San Diego Zoo, rare waterfowl, pheasants, doves, parrakeets, and small birds. The collection there is now reaching its old standard. All the birds which I rear in California, and others presented by friends, are finding their way to Clères, while some have been purchased in Europe, in Africa, Australia, and in South America. Quite a number of young have been reared at Clères in 1952 and 1953, among which are Rheas, Spicifer, and other Peafowl; Siamese Firebacks, Mikado, Edwards', Swinhoe's, Horsfield's, Cheer, Bel's, Blue and Brown Eared Pheasants, Red and Sonnerat's Junglefowl; Blue and Greater Snow, Cereopsis, Magellan, Ashy-headed, Blue-winged, Egyptian, and Orinoco Geese; South African and Common Sheld-Ducks; wild Muscovies; Mandarin and Carolinas; American and Chiloe Wigeons; Shovelers, Pintails, Bahamas (including a white one), Gadwall, Cinnamon and Chilean Teal, American Black Ducks, Red-crested Pochards, Red-heads, etc.; Wonga-wonga Pigeons, Green-winged, Bronze-winged, Senegal, Peruvian Ground, Bar-shouldered, Diamond Doves; many Fischer's and some Masked Lovebirds, and a large number of pied and other Budgerigars.

An imported pair of Black-necked Swans, after four years, nested in August, but failed to rear the two cygnets hatched.

Considering the difficulties of the present time, the comparatively small staff, and the disturbance caused by tens of thousands of visitors, such results are quite satisfactory.

* * *

BREEDING OF THE CROWNED WOOD-PARTRIDGE

(*Rollulus roulroul*)

By IR. F. J. APPELMAN (Rotterdam, Holland)

The hen of the pair that lives in one of the aviaries in the big Hothouse at the Rotterdam Zoo "Blijdorp" (see AVICULTURAL MAGAZINE, Vol. 59, No. 5—September–October, 1953), laid six eggs in a small hole under some stones, four of which were fertile.

A small bantam foster-mother spoiled two eggs, but of the other two which were brooded in the incubator, one chick was hatched, which afterwards proved to be a cock.

From the beginning the little fellow was very vigorous and bullied a much bigger bantam-chick that was given him as a companion. He was fed in the same way as newly hatched pheasants and thrived.

He has become a very beautiful proud young cock, with a fine red crest on his little head.

THE BEARDED BARBET

(Pogornorhyncus dubius) (?)

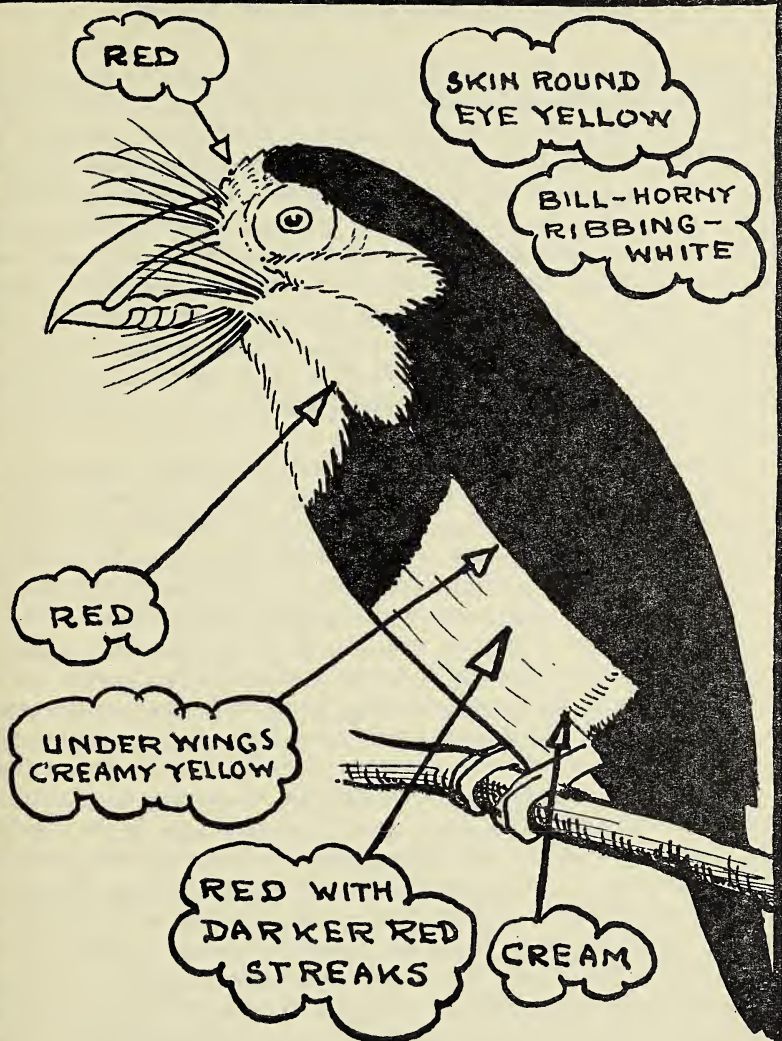
By H. A. FOOKS (Burwash, Sussex, England)

I unfortunately do not possess a copy of Bannerman on West African birds, but from notes made from the books when I was in Nigeria, the description did not tally with my own observations of birds which were found between Kaduna and Jos.

The description (it may not have been Bannerman) was that the entire top of the head, back, and wings were black, while the birds I saw had a red patch on the forehead and a thin bar of red on the secondaries. These markings are, however, only supposed to apply to the Saw-toothed Barbet. The latter lacks the amazing bristles which decorate the base of the bill of the Bearded so that it would be difficult to make an error in identification.

The impression of the bird in flight is red and black, very noticeable against the green foliage of the trees, though occasionally they may be seen making a brief visit to the ground. They do not seem to flock and are normally seen in pairs or singly. From my hut I could sometimes see as many as half a dozen pairs, though they became scarce directly the particular fruit on which they had been feeding ceased to be available in fair quantities. I managed to obtain several young from the nest and found them easy to rear on bread and milk and Mellins Food mixed with an equal measure of mashed banana. As soon as the feathers commenced to sprout a few termites were added to their hourly feed, these were increased as the birds grew and the bread was proportionately lessened. It was noticeable that as soon as the termite ration was for any reason lessened, the young birds showed signs of decline. Several old birds which I kept invariably swallowed whatever was fed them without making any attempt first to break it up, regardless of the size of the piece. Their contortions in swallowing any outsize fruit was strangely reminiscent of Charlie Chaplin swallowing a piece of dry bread or something he did not much fancy. I frequently saw these birds searching the flowers of the cotton trees though whether for insects or nectar could not be determined. The crops of some birds contained a large proportion of insects and included large beetles from which the wing cases had not been detached. Judging by the size of these insects it would appear that they had been taken deliberately.

The size and power of these birds' beaks is out of all proportion to the use to which they could be put and I can assign no particular use to the outsize bristles in spite of spending hours with both binoculars and telescope watching them feeding. The sketch is from a live bird which I had for some time and which I had to release as no livestock was allowed on the plane.



THE BEARDED BARBET

H. FOOKS-53.

ABOUT MY AVIARIES

By GUST. A. GJESSING (Drammen, Norway)

Everyone I talk to is surprised when they hear that I keep a fairly large collection of birds, mainly Australian Parrakeets, in outside flights in Norway, which, most people appear to think is the border to the North Pole! But, as many English aviculturists who have read *Cage Birds* through the years know, I have now worked at the hobby in Norway since 1934, and have had fairly good results. What losses I have had, have never been because of the weather, but mostly have been caused by my own inexperience and lack of knowledge as to what to do in time of trouble. I have remedied this by bothering eminent aviculturists the world over with a lot of questions. I know to-day a lot more than I knew, and have this year built new quarters for my birds, and this is what I intend to tell my colleagues in the Avicultural Society about.

The war put a stop to my bird-keeping for a while. I experienced a lot of changes and ended up by buying the new property "Woodberry Hill" here in Drammen. As soon as I had moved I set about planning a new aviary, and last October began to write to all the aviculturists I knew in England, Australia, Germany, and U.S.A., in order to obtain suggestions and experiences from them, so that I could get my new aviary as near the ideal as possible. I built a structure 10 metres long and 3 metres wide from two layers of wood panelling boards, and insulated with glass-wool, which was encased in tarred paper. I used glass-wool because it is 100 per cent vermin proof. Plenty of windows in the front of the house, and flights facing south, the back wall facing north, and the whole very nicely located inside small woods, which are a good protection against the weather. The entrance holes to the flights I placed down by the ground—against the advice of many aviculturists, but knowing that warm air goes up and cold air stays down, I figured that the further down the holes were the more warm air I would conserve in winter. I will admit that it took a long time to train the birds to use these entrances regularly, but I succeeded, and now they all do so without any trouble. The flights were built in compartments, each compartment to accommodate one breeding pair of parrakeets.

In the middle of the "battery" of compartments, I built a large one intended to hold possible young birds. The house, as I have stated, was 10 metres long. At the end of this house I built a large open flight without a connecting inside flight, 7 yards by 1.1 yards, where this summer I have had a pair of Roseate Cockatoos. The inside flights are 1.1 yard by 1.7 yard, and all compartments, inside and outside, are about 3 yards high. For netting I have used the strongest

one can buy in half-inch mesh. All compartment walls are double to avoid biting of feet and beaks through the netting. Outside netting walls are double to keep out cats and other animals, only the front is single to allow a good view.

The aviary is so placed that I can see it from all the important windows in the main house. I use fluorescent lighting, two lamps each of 40 watts. This can be turned on and off from the main house. Around the bird aviary I have planted many hundreds of beautiful and strange mosses and other plants, collected in the woods of Norway and moved into my place. I wanted the whole thing to be original and beautiful, and have so far been more than lucky. From the road there is a special entrance into the rockery where the aviary is located. This has been planted with nice small junipers so as to look like cypresses. Between the junipers I have nice young heather, and between the heather lots and lots of field flowers, the names of which I do not know in English. There are bluebells, red, white, yellow, and lilac flowers and some dwarf ferns. A basin I have made in front of the aviaries out of granite blocks, surrounded by nature-stonework, is also planted with strange rare mosses which bloom crimson, white, yellow, and blue. Surrounding the basin are the only cultivated plants in the whole garden, some Kamus lilies, tall ferns, and flowers in various colours, spirea and water-swordgrasses. In midsummer the whole thing looks like a colourful painting. I must here admit—I have not done this by myself, a friend, artist and sculptor, planned the whole thing, and we have done the work together. I did not want to employ strangers to do it, because the real art would then not be the same as when you do it with your own hands. A lot of love for God's nature lies in this arrangement.

Above the aviaries I have built a large stone terrace from loose stones and planted colourful flowers among the stones. The top of the terrace, which is about 25 yards square, is a lawn. In the corner, right up against the house, I have planted an aviary, made from rustic birch, with colourful berberis bushes. There the Australian finches belonging to my wife will go in summer. This aviary is $3\frac{1}{2}$ by $3\frac{1}{2}$ yards and 3 yards high. There is a window into the cellar (my cellar lies above ground), and inside in the cellar I have partitioned off and made a bird-room where I have two flights. One is connected with the finch aviary, $2\frac{1}{2}$ by $2\frac{1}{2}$ yards by $2\frac{1}{2}$ yards high, and the other somewhat smaller is intended to house a pair of *Ara severa* during winter. In the summer I will keep it for eventualities.

In this bird-room I have my feed, a work-bench, shelves with my mealworm boxes, and a battery of cages of the type in England called "Budgie breeding-cages". I use them for quarantine for new arrivals and possible young ones, should I get more than I can

accommodate in other places. It is always good to have some reserve place.

With the kind help of many of our members in the Avicultural Society, and with special thanks to the Hon. Secretary, Mr. Prestwich, for his helpful assistance, I have been able to buy quite a collection this year. Most birds came from England, some from Denmark, and one pair from Australia. I now have the following species housed in my aviary :—

2/3 Rosella, 1/2 Stanley, 1/1 Princess of Wales, 5/3 Bourkes, 1/1 Roseate Cockatoo, 1/1 *Ara severa*, 1/1 Rock Peplar, 10/10 Budgies (all unusual types), and twenty different finches, Red Cardinals (with three young in the nest at present), orange Canaries, white and grey Java Sparrows, Bengalese, Cordon Bleu, Grass Finches, Zebras. These include this year's young.

I did not get the aviary finished before the middle of May, 1953. The birds were practically all young ones from the previous season (1952), but still I had the fortune of breeding eight young Bourkes, one young Rosella, and a number of Zebras and Budgerigers. I have three young Virginian Cardinals in the nest, and am trying to bring them up on mealworms and egg food mixed with raw meat. I have little hope, but will try anyhow. It is too late in the season. Had this occurred in the summer, I would have let the grown birds out to catch insects, they do not leave home when they have young ones ; I have tried this once before with success.

I am very anxious to see how the whole collection comes through the severe winter in the high altitude of Konnerud ; I live at 300 metres above sea level, the air is thin and clear and dry. The birds seem to thrive on the climate so far, and they have come into as good a condition as can be expected.

I imagine space in the Magazine is limited, so will let this be enough. At some later date I will relate something about the other bird-people we have here ; they are few, but there are some that are very interested.

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THE BREEDING OF THE BLACK-CRESTED FINCH

By C. AF ENEHJELM (Helsingfors, Finland)

The Black-crested Finch—*Lophospingus pusillus*—from the interior of Argentine, was, as far as I know, first imported into Europe about twenty years ago. In a consignment of South American birds I got four birds, apparently two pairs, of a species new to me, and the name was not known by the Dutch importer. I sent a description to Mr. Karl Neunzig in Berlin, who gave me their name and particulars. At that time I had no further results with them, and gave them to a friend, who is specially interested in South American birds.

On a trip to the Continent in 1950 I was happy again to secure five birds, two cocks and three hens. In an indoor-flight in my bird-room in my house the birds behaved quite peaceably all the winter. I should mention that one pair of the birds was obtained from a private aviculturist, who had kept them in his somewhat roomy birdhouse with an adjoining outside flight, in the company of various small birds—Weaverfinches mainly—but parted with them because they were rather aggressive towards other birds. The other three birds were freshly imported.

In the spring of 1951 I put the first-named pair in an outdoor flight with an adjoining closed-in room in the company of various small finches and weavers, about ten pairs in all. The flight was approximately 20 by 7 by 7 feet, the indoor compartment about 7 by 7 by 7 feet. I had no opportunity to follow the birds very closely, but never observed that they were aggressive to other inmates. In July I observed an open nest, cup-shaped and very deep, made of coconut-fibres and lined with white dog hair. The nest was built in a Harzer wicker cage and contained three eggs. As a pair of Canaries also shared the flight I first thought that the nest belonged to those birds, but later on observed that the Crested Finches visited the nest. Two youngsters were duly hatched and reared. They left the nest when about fourteen days old, but were fed by the cock for a long time, I think about a month. The hen eventually settled down for another clutch of three eggs from which two youngsters were hatched and left the nest in due course. As far as I could see nothing but fresh ants' eggs were used for feeding. I had a lot also frozen for later use, but when the fresh ants' eggs, through some disturbance in the freezing-room, were spoilt the fate of my four young *Lophospingus* was sealed, and they all died, still apparently being dependent on this food.

In 1952 no attempts at breeding were made, and the old cock died. In the spring, 1953, I got a new cock and mated him to the old hen. As I was anxious to make some closer observations

I put the pair in a flight in the bird-room in the house situated close to my office, so I had time to look at the birds at frequent intervals. The flight is approximately 8 by 6 feet and about $7\frac{1}{2}$ feet high. The room also contained five or six pairs of other small birds, Red-headed Parrot Finches, Zebra Finches, Cherry Finches, Cordon Bleus, Avadavats, Green Avadavats, and Bichenow Finches. As nests, Harzer wicker cages and small plywood boxes 5 by 5 by 5 inches, with half-open fronts were used. There were not very many branches, but they were sufficient. There was a big window facing south and a smaller one facing east. All feeding receptacles, open shallow glass feeders, were placed on a zinc plate on the floor, with the bathing facilities as well.

The *Lophospingus* settled down quite quickly and started nest-building in a Harzer cage. The nest was again mainly built of coconut-fibres and lined with white hair from a wire-haired terrier (a very good and highly treasured lining material easily obtained from every dog trimmer). I am sorry I cannot give the exact date of the first egg, two only were laid. One youngster was hatched on 4th May and left the nest on 18th May, two weeks old. The youngster was not able to fly up, but sat in a corner most of the time on the first day and was regularly fed by the cock. Already on 20th May I observed the youngster in one of the feeders, but am not quite sure if it took any seed. Already the next day, 21st, the youngster sat on a rather high branch, and on the following day, 22nd, it flew very well. Two days later some bird, I did not know which, started to pluck the youngster badly on the breast. Later on I observed it was the cock. This plucking grew so bad that I had to separate the young on 1st June, by which time it seemed quite able to fend for himself. I put him alone in a box cage 30 by 14 by 18 inches, in which he soon regained his plumage. He was feeding mainly on fresh ants' eggs and milksop, which also had been used by the parents for feeding, also some sprouted seed, millet and canary, and possibly some egg food was taken. Lots of chickweed had been at the birds' disposal all the time, and probably also used for feeding the youngsters. As far as I could observe the young one was fed mainly by the hen for the first week, after which time the cock also took part in the feeding. After leaving the nest the youngster was fed only by the cock and ignored by the hen, except that she also plucked it. As to the colour of the young bird, this was rather similar to the hen, only with some irregular, not very defined stripes down the breast. The crest was already clearly visible before it left the nest. On the 29th July the youngster seemed ill and died on the same day, as far as I could see, from enteritis.

Further mating was observed on 26th May and two eggs were laid on 31st May and 1st June, but the hen refused to sit. Nest-building was started again in the same Harzer cage and a new nest placed at

the side of the earlier one. On 25th June again two eggs were observed and two young hatched on 5th and 6th July. One of these died on 12th July and the other left the nest on 17th July. This youngster was not plucked, but had to be transferred to an adjoining flight on 8th August. This young bird—probably a hen—is still living at the time of writing (22nd November), and is exactly like the old hen.

On 19th July a fourth clutch of two eggs was observed and two youngsters hatched about 31st July, but died on 5th and 7th August.

The pair had usually behaved quite peaceably, but sometimes the cock started to chase some bird—usually a Zebra Finch up and down the flight. At length I had to transfer the Zebra Finches, as I wished to observe the *Lophospingus* and would not disturb them. After the fourth unsuccessful clutch the cock apparently thought it would be better to have the room for himself and his wife, so he started in a typical Cardinal-manner to chase now one bird, now another. As the victims happened to be Red-headed Parrot Finches, Plum-headed Finches, and Bichenows, which all had young I decided to catch the pair and put them alone in a smaller compartment about 6 by 3 feet, but of the same height as the previous one. This flight they shared only with a pair of Painted Quail, in which they took no interest. In this compartment they started to build a new nest in a Harzer cage and on 15th August two eggs were in the nest. Two youngsters hatched on 27th and 28th August, one of which died on 7th September, the other leaving the nest on 9th September, apparently a bit too early. On the same date the nest was transferred. As I had to go abroad on the same day, my wife took over the care of that special pair and reported to me that the young was plucked for a couple of days, but that the plucking then stopped. Apparently the lack of opportunity for further nest-building was the reason. On my return home on 26th October all three birds were in good condition, but a fortnight later the cock started to pluck and chase the young one, so I transferred it to the adjoining larger compartment already mentioned. The young bird had been damaged by the plucking of some of the primaries, so that he could not fly very well and used to climb up the netting to a branch. On these occasions the cock furiously attacked the young one through the wires and still plucked its breast. I had now to transfer it to the cage already mentioned, where it seemed to settle down quite satisfactorily and the feathers were soon in order.

I now wonder whether the reason for plucking is that the parents wish to nest again or that the cock feels that the young one is possibly a cock. As stated earlier the other young one, now about five months old, has not shown any signs of changing plumage, so it is probably a hen. I should of course be very interested to have a young cock, as there are, as far as I know, no data about the time the cocks moulting out to adult plumage. I should also mention that it is certainly not

my custom to take five clutches in succession from one pair as a general rule, but I was interested to see how many clutches this somewhat rare species would lay and I also was anxious to obtain more youngsters in order to observe their development.

The description of the egg is as follows : slightly pointed, greenish-grey, marked with streaks and spots of two darker shades, more pronounced towards the larger end. Size 19–20 by 15 mm.

As stated earlier, the bird was first imported alive to Europe about twenty years ago, again after the last war in 1949 in larger numbers and probably from time to time since then, as it is sometimes advertised in the fancy press.

As far as I know the Black-crested Finch was first bred by the late Dr. Maurice Amsler in 1939 and later by Mr. Allen Silver, and in 1949 and 1951 in Switzerland by Professor Hans Steiner, who gives a very interesting account of the breeding in Vol. 8 of *Die Gefiederte Welt*, 1953. I do not think it is an easy bird to rear, it is just the same thing as with many other species, that you must be lucky even to get a pair which wishes to breed. For instance, my other cock has been paired with both my other hens under exactly the same conditions, but they have never made any attempts to breed. This shows the wisdom of always getting several specimens of a species you are anxious to breed.

The species was first discovered by Burmeister on his expedition to the La Plata States in 1856, and later, in 1863, described in *Journal für Ornithologie* as *Gubernatrix pusilla*. In the Checklist, Vol. 12, Dr. R. Bowdler Sharpe describes the bird as *Lophospingus pusillus*, but says that the female is similar to the male. This, however, is wrong. The sexes of adult birds are easily distinguished. The cock has a black throat spot which is lacking in the female, and the stripes are more clearly defined in the cock, also the breast colour is a trifle deeper. In his large book, *Die fremdländischen Stubenvögel*, Part I, 1879, Dr. Karl Russ describes the bird as a Lesser Green Cardinal. In spite of the fact that there is no green colour in the *Lophospingus*, there is a certain resemblance between the two species, especially the female of the Green Cardinal. There is, however, a very remarkable difference in size, the *L. pusillus* being only 4.8 inches long and the Green Cardinal 7.5 inches.

Further notes written on 3rd January, 1954.

On 1st December I noted the older chick—born on 5th July—warbling with a very loud voice, and in a few days it was singing loudly as the old cock. The chick started serious battles through the wire-netting with his father in the adjoining flight, both plucking each other on the breast. I had to transfer the bird to a box cage. At the same time I observed a grey spot on the throat, growing each day, so

that a month later the bird had a patch almost as big as that of the old cock. At the same time the grey stripes on the sides of the head have grown darker, and are now almost black. Contrary to my earlier belief, this bird is a cock, the moulting out into adult plumage seems to start when the bird is about five months old and will be finished in about six weeks.

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"GALLUS JOHNSONI" AND OTHER HYBRIDS

By DAVID M. JOHNSON (Port Orchard, Washington State, U.S.A.)

It is now a year since I made a report to the Avicultural Society on facts observed in the breeding of my birds for the season. Fourteen husky youngsters still survive in their juvenile plumage.

I will first, however, describe the eclipse in the hybrid cock which took place in June, 1953; it would seem that the hybrid changes more towards *sonnerati* with age. This cock lost his hackles, and they have been replaced with short, rounded, flat black feathers. The shoulders, formerly maroon red, are now showing the waxy webbed character of *sonnerati*, but the shanks are still pink. Strangest of all, one wattle has receded completely, while the opposite one has moved towards the centre of the throat. This is most interesting. It would not surprise me, if when this cock blooms again, perhaps in August, the spotted hackles returned.

I have raised a few second-generation hybrids this season, only to prove conclusively that the hybrid is fertile. Having to use a sister hen and not having any fresh blood of a non-related stock, I have not been anxious to breed from them. The eggs, though of the highest fertility, did not hatch well.

The chicks were unable to break through the shell, and were at first tiny and delicate. They were, however, strong enough after a week. I have had reports from other States of poor hatches from pure *sonnerati*, which causes me to wonder if lack of new blood is not a strong factor in this case.

Now for the report of what I am pleased to call "*Gallus johnsoni*." These are the super birds derived from a three-quarter *sonnerati* cock and a Cornish bantam hen. The pencilling is dark, the eggs were 100 per cent fertile, and all the chicks hatched out and lived. These chicks were robust from the egg, docile and tractable yet with a certain reserve, and with a hearty dislike of being touched or handled. They were suspicious of danger and ever alert. The blend of these two species is indeed harmonious. Half-grown pullets show many of the attributes of *sonnerati*, including whitish breasts and throats, tails carried low, as in both species, wings proportionately larger than in the Cornish bantam, but with bones somewhat larger than in

the *sonnerati*. The length of leg gives a graceful carriage, and the body is round and compact. The juvenile plumage resembles certain grouse of the same age ; the feathering of all is perfectly uniform, the heads are round, and there is no visible comb or wattle. None of the females of any of these hybrids has the facial skin. The colour is rather brown with the exception that just before a hen is laying there may be a slight rosy tint at the tip of her very small pea comb.

At present the juvenile plumage of birds of the year is not like either of the species from which they are derived ; it is rather distinctly its own yet withal a pleasant blend of both. In some future issue of the AVICULTURAL MAGAZINE I may be able to give a description of the adult plumage of these birds. The cockerels have yellow legs and the pullets green.

When considering the general characteristics of these birds it may be of interest to mention that they are quite playful, but in sham battles do not seem to hurt one another at all, and they are, in rapidity of movement, not to be compared with the comparatively slow-moving domestic fowl.

The three-quarter *sonnerati* cock would give one the impression, in the early morning especially, that he had turned vicious, as he delights in scaring the pullets of the year, frightening them until they seek cover, when he promptly finds them and affectionately tugs their neck and breast feathers, indicating that no harm is intended.

Our worst predators here are racoons which have become quite bold, and the so-called civets or little spotted skunks, which steal eggs and sometimes chicks, so that everything must be kept under wire.

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BREEDING OF MEXICAN PTILOGONYS

By A. H. ISENBERG (Woodside, California, U.S.A.)

On our first trip by motor to Mexico in 1945 I saw for the first time live Ptilogonys at about 8,000 feet elevation between Mexico City and Taxco. It was a wonderful sight to see these lovely, graceful birds in their native habitat. There were about seven of them, and they were feeding on some sort of berries on a tree with reddish bark, not unlike our Madrone trees in California. Their pleasant call notes were constantly uttered as they flew from the food tree to another, back and forth. The time of year was April, so that the country was extremely dry.

Upon arrival at Taxco my wife and I were wandering about the fascinating old streets when we passed a seamstress' shop, and there, to my great joy, was a fine pair of Ptilogonys in a very small cage. No amount of persuasion and begging on my part would persuade

the lady who owned the birds to part with them, even though I offered her 100 pesos (about \$8.00). I was so excited and so disappointed. We thanked the lady for letting us see her birds, and asked where we might get some, and she said in the Mercados of Mexico City. It was many days until I could test the lady's advice, as we were on our way to Acapulco.

To make a long story short, I did finally manage to collect seven Ptilogonys among other nice Mexican birds. The back of our car was loaded with cages and birds on our home stretch. Two Ptilogonys died on the way, leaving five upon arriving home. After a week or more rest in a large cage in the "Loochoo Robin" aviary, the Ptilogonys were released into the aviary.

The next year saw one pair carrying nesting material, but the only result that year was that the male of the mated pair killed the odd male, and eventually in 1947 I had only three left, a male and two females. This was the year of my first near success, as I reported in my article on the hybrid Clarin-Jilgears, when one Ptilogony was reared to the flying stage, but it died in the nest. No further attempt to nest was made until this year, which is a peculiar thing.

In April, 1952, my wife and I again were on our way home from Mexico, this time with another seven Ptilogonys and other birds. Three of these were given to friends, and I kept two pairs which were released in due course with my old pair. Ptilogonys evidently are gregarious in nesting habits, as this year all three pairs had nests and hatched young, but only one pair was successful in rearing one young. As I write (8th August) the young bird is quite on its own, is mostly grey, and does not show any yellow on its under tail-coverts.

Ptilogonys are rather late nesters, June being the month nest building starts, and the nest is constructed mainly of Spanish moss plus rootlets and grasses and some hair and string, but without the Spanish moss I don't think they would nest. Two to three eggs are laid (eggs are bluish-grey, heavily peppered and speckled with dark brown) in the open cup-shaped nest. The nesting sites varied in my case. One pair built in a branch of *Ceanothus* (California wild lilac bush) about seven feet up and right next to the aviary netting in full sun; this later proved the death of the young from sunstroke. Another pair nested about nine feet up in a thick and well shaded trumpet vine; this young one simply disappeared. The third, and successful pair, nested in a fork of a top branch of a long-needled pine tree about nine feet up. This last nest was partially shaded. Two young hatched here after approximately 14 days of incubation, the male took his turn, and when not incubating would guard the nest quite well. Territories were set up by each male, and not too belligerently enforced, but I did feed them in four or five different places.

Ptilogonys, like *Phainopepla*, feed their young on berries very soon

after hatching. I only gave mealworms two or three times a day, the parents hawked quite a few insects, but fed the young mostly on canned blueberries from which the syrup had been washed ; fresh blueberries were also cherished when available, also soaked currants, Philadelphia cream cheese also was taken. The giving of mealworms presented a problem in such a mixed aviary. A pair of Indian Brown Robins were particularly annoying, both in stealing the worms and chasing the Ptilogonys away. The Robins built three nests in three different nest-boxes, laid three eggs each time, but did not hatch any. An Aztec Thrush was also a nuisance, but by quickly placing a few worms in different places the Ptilogonys got enough. Ptilogonys are not aggressive, and almost any smaller bird can frighten them off, such as a Scarlet Tanager, the Robins, etc. Fresh figs are greatly cherished by Ptilogonys, and, of course, elderberries. Apples and bananas, hard boiled egg, and my Pabulum mixture are also taken.

In our climate Ptilogonys are quite hardy, and seldom use the shelter, even in rain and stormy weather. One year the temperature got down to 11° F. but the days were sunny ; such extreme temperature change, however, is fortunately rare here, 30–32° being the usual extremes in winter, and not often.

Other near successes were : Grey-winged Blackbirds, one young out of nest, but injured in its first flight, and later died at about three weeks old ; one young Red-vented Bulbul almost reared, but died of sunstroke during a very hot spell (these birds now have another young about twelve days old) ; Blue-winged Sivas had young ; also Silver-eared Mesias, Shamas, White Eyes, and Satin Bower Birds had one egg ; also Spectacle Thrushes and Indian Rock Thrushes. I just do not have enough aviaries for breeding. Next year I plan to have a series of breeding aviaries where *one* pair of birds can be by themselves.

Now (11th September) the one young Ptilogony is doing very well, and shows some yellow on the under tail-coverts.

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THE BIRD COLLECTION AT THE PAIGNTON ZOOLOGICAL GARDENS

By KENNETH SMITH (Paignton, Devon, England)

The avian collection at Paignton Zoo has been increased considerably during the past few years, particularly in 1953. It is still small, however, if compared with the exceedingly rich and representative collection maintained here by Mr. Whitley before the last war. There are no comprehensive family exhibits here now, such as that of the Birds of Paradise of bygone days. We have, nevertheless, many interesting specimens, and we aim to increase the avicultural side of the Zoo as far as circumstances will allow.

New arrivals are accommodated alongside old inhabitants. These older birds are living reminders of former days when the Primley collection could vie with any other avicultural establishment in the world—of days, indeed, when in many respects it could not be excelled !

A pair of Great Condors have been at the Zoo for about twenty years. At the end of last January and in early February mating was observed, and on 26th February an egg was laid. The birds were most attentive, seeming to share incubation duties fairly, and my hopes were high. Maximum privacy had been ensured by fencing off the whole range of birds of prey cages from the public, and only the keepers directly concerned with the Condors' welfare were allowed in the area. But, alas ! these precautions were of no avail, for on 3rd April the egg had gone ; taking into account the full circumstances I was forced to the conclusion that it had been destroyed, most likely by the male. The day was Good Friday, and the noise of the first holiday crowds, although not close, was disturbing. Mr. Whitley told me that these Condors had succeeded in hatching a chick some years previously, and all went well for a while ; then the cock killed the youngster—though not intentionally—when he was upset by visitors.

Caged next to the Condors is a pair of Chilean Sea Eagles, and on the other side are three Brazilian Caracaras. There is also a very tame Hooded Vulture, one of a number I brought from West Africa in 1951. Probably the most unusual exhibit among our raptorial birds is a Swainson's Buzzard (*Buteo swainsoni*), sent to us last winter by Mr. Tom Baines, of Calgary Zoo. I know of no record of this species being shown in Britain before. It is a choice feeder, and it is stated that in the wild state it subsists largely on gophers ; our bird takes freshly killed mice, young rats, and rabbit flesh.

Four fine American Eagle-Owls, also received from the Calgary Zoo, are shown next to the British Little Owl, forming an amusing contrast in size. A pair of Barn Owls reared a chick this summer, and

in the previous season two young were raised by the same pair of birds.

The natural beauty of the Zoo, enhanced by subtropical trees and shrubs, provides an ideal setting for Cranes. They do well in spacious grass enclosures, where palms, bamboos, and other trees and plants ornament the scene and offer shade and shelter. A mixed group of Sarus and Demoiselle share the largest enclosure; other Cranes shown are Grey-necked Crowned, Japanese White-necked, and Stanley. Geese, too, roam the enclosures, our stock including Cape Barren, Egyptian, Canadian, and Abyssinian Blue-winged.

In January, 1953, we imported Black-necked Storks from India. They are handsome dandyish creatures, much more elegant than the Jabiru (the Jabiru I knew in the small Zoo attached to the old Georgetown Museum was very dignified, but hardly elegant!), and in the sunlight their darker plumage appears almost glossy. Black-necked Storks, I think, need a good deal of care in an English winter, even here in Devonshire. For extra protection against draughts and extreme cold we have built straw-padded fencing around their winter sleeping quarters. A notable eye difference, presumably of sex, occurs in these Storks; the larger bird, which I believe is the male, has an all-black eye, while the smaller bird, presumed female, has a yellow iris and black pupil.

Other large birds of note are Adjutant Storks, White Pelicans, Black-footed or Jackass Penguins, and an Emu. In the aviaries opposite the Storks' compound is a Spoonbill, which was found with an injured wing near Teignmouth. I may say that during the past two years I have had several reliable reports of Spoonbills observed in this district, sometimes of twelve to fifteen birds flying together. One of our keepers was fortunate enough to see a Spoonbill from the train window when travelling along the coastal railway between Paignton and Teignmouth.

The Sacred Ibis, Cattle Egret, and Vulturine Guinea-fowl are other interesting species represented. The Cattle Egrets came from the collection I made in the Sierra Leone Protectorate. In summer they strut through the long grass in the aviary, arching and stretching their necks as they search for insects, just as they did back in Africa. The Vulturine Guinea-fowl were brought from Kenya by Messrs. J. Seago and R. Bloom in November, 1952. They are now fully acclimatized. At times they cavort around the aviary in quite a mad manner, expressing it seems just the sheer joy of living; their concerted calls of excitement can be heard a long way off.

Oiled and injured sea birds are often brought to the Zoo for attention, some of them, of course, quite beyond recovery. We do what we can to save them, but it is an exacting business if the injuries are serious. Three Manx Shearwaters, which were washed ashore at



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SWAINSON'S BUZZARD (*BUTEO SWAINSONI*) IN PAIGNTON ZOO.

[To face p. 20



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SARUS CRANES (*MEGALORNIS ANTIGONE*) IN PAIGNTON ZOO.

Bude and offered to London Zoo, were sent here recently on the advice of Mr. John Yealland. We supplemented the fish diet with halibut liver oil capsules. On moonlight nights I watched their shuffling and scrambling gait, and now and again heard their wild penetrating call.

The largest aviary in the Zoo, the Cottage Aviary, 50 feet by 44 feet, contains seed-eating birds. It gives splendid opportunity for flight, while bushes and plant life provide a naturalistic touch. Silverbills, Zebra Finches, Rose Finches, Bengalese, Red-headed Buntings, Avadavats, Java Sparrows, and Canaries, as well as native species, nest freely. In spring and summer the floral effect is delightful and the activity among the birds causes great interest among visitors. In adjoining aviaries are four kinds of Myna: Black-headed, Grey-headed, Bank, and Pied.

The Parrot House collection is under the supervision of Miss Gladys Salter. Macaws are well represented and include Spix's, Illiger's, Severe, and Hahn's; Conures include Blue-crowned and Golden-crowned; Parrots include Salvin's, Red-throated, and Maximilian's; and among the Parrakeets is the Green-winged King. Rarest bird in the Parrot House is the beautiful Blue-eyed Cockatoo (*Kakatoe ophthalmica*), the survivor of a pair specially secured in New Britain for Mr. Whitley by Mr. Shaw-Mayer. Elsewhere in the Zoo there are Ring-necked Parrakeets which bred during 1953. A pair of richly-hued hybrid Parrakeets (Barnard's \times Rosella), which came from Mrs. G. T. Clark's aviaries at Bromsgrove last May, is kept in the Pheasantries. Here, too, are Indian Gallinules, also a fine Hunting Crow, or Hunting Magpie, (*Cissa chinensis*), a gift from Mr. A. A. Prestwich.

Wild birds find the Zoo a virtual sanctuary. Buzzards soar or fly in languid fashion overhead, often several in view together. Teal, Shoveler, Pochard, Wigeon, and Mallard come to the lakes to join our waterfowl (Carolinas, Bahama Ducks, Pintail, and Sheld-Ducks, in addition to Mallard and some hybrids). Herons drop down to fish the shallows of the lakes, Moorhens abound, and Water Rails skulk in the reed-beds. Woodpeckers, Magpies, and Jays are common, and Goldcrests flit unobtrusively through copses and plantations.

It is probably correct to say that there are more Peafowl at Primley than anywhere else in Europe. Like the wild birds they enjoy complete freedom here, roaming as they wish through the Zoo grounds and over Mr. Whitley's private estates. They are left entirely to themselves at nesting time and bring up their own young, no attempt being made at hand-rearing. In springtime it sometimes seems as if one meets a Peacock in display at every turn, each bird attracting a circle of admiring visitors. The Peafowl roost in groups, and I often count twenty to thirty birds in a single tree. The report of a gun or the

careless banging of a door in the still of a summer night often starts them calling ; the raucous cries come from all directions, from every roosting place it seems, some quite distant. It is a remarkable experience to stand alone in the darkness in the centre of the Zoo, listening to the tremendous volume of sound coming from the near-by trees and from the wooded slopes beyond.

I have not, of course, mentioned all the birds in our collection. To do so would have given this article a catalogue complexion even more than it bears now. I have attempted to avoid this as far as possible, and I hope I have not fallen too far short of that aim. In conclusion, I would like to acknowledge the enthusiasm and meticulous care shown by Mr. R. Travers, and by Major D. Willis-Fleming, members of the staff ; they are responsible, day by day, for the welfare of the birds.

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IT'S A "NEW WORLD" . . . FOR BIRDS.

By Dr. GEORGE A. ALLEN (Salt Lake City, Utah, U.S.A.)

As the civilization of a country becomes more mature its inhabitants seem increasingly to recognize the importance that bird life plays in the economy of their land. This is evidently more true of older lands where the need for conservation is so great. Farmer and urban dweller alike recognize that abundant bird life means fewer insect pests and consequently better crops. Too, they appreciate more fully the æsthetic value of birds, and take steps to ensure preservation and propagation. There is apparently a direct relationship between the knowledge and care of bird life, and the degree of culture in a nation.

When the older civilizations were at their peak, protective laws were often enforced by the death penalty. Some birds, such as the rare and beautiful varieties of pheasants, could be owned and held captive only by royalty, and were therefore named the "Royal Birds". Feathers from those of rare beauty were only for the plumes of the ruling class, and a violation of this law meant the most severe punishment.

Evidence of esteem and admiration of avian life is to be found in our museums, where the designs show birds woven into the most delicate and costly fabrics. These, together with the rare paintings which once could be possessed only by the wealthy, now come down to us through the centuries as proof of the high appraisement these feathered aristocrats enjoyed in those elegant days.

But nowadays in Europe birds are taken for granted as almost a necessary part of most households. The city dweller with his small backyard plot keeps some ducks, bantams, or pheasants for the æsthetic value and animation which they lend to the oft-times drab

surroundings . . . as well as for a possible treat for his Sunday appetite. The home's interior is cheered by the presence of a multi-coloured pet, or the voice of a captive songster. As the standard of living goes up, the individual naturally has a wider selection of birds to choose from. Those whose pocket books permit purchase the rare and exotic types. However, those of less affluence equally share the desire for better birds, and sometimes acquire them at the sacrifice of more essential items. Though we human beings are often divided into economic classes, there is little or no distinction between the artistic judgments of bird lovers. The visual pleasure of an ornamental bird reacts about the same on all human retinas, the world over.

In some oriental countries the birds are for sale in cages of exquisite workmanship. American tourists delight in finding the Mediterranean market places virtually alive with gay finches, warblers, and canaries.

When Europeans settled the North American continent, wild life was richly abundant. But the basic problem of survival demanded people's full attention. Not until after the twentieth century began did we realize the tragic rate at which we had dissipated our wildlife resources, or the urgent necessity of restrictive controls. The years 1900 through 1920, witnessed the extinction and near extinction of several species of American birds. It was then, by the heroic efforts on the part of enlightened citizens, that protective legislation was passed to stem this growing calamity. The nation and the forty-eight component states are all now fully cognizant of the need for stringent protection, and are banded together in a great restorative movement.

The Federal Wildlife Agency protects the migratory birds. The game commission of each state protects its upland game inhabitants. These, together with the Audubon Society, the American Pheasant Society, and numerous other groups, have created a public consciousness of our feathered friends' place in our daily living. The few ripples started by the breeze of protest against waste has by now developed into a considerable wave of constructive action whose crest rises higher year by year.

This surge of interest has now attained very noticeable proportions. It is no longer considered a pastime for the effeminate. Lectures and pictures on this subject are filling our auditoriums. Bookstores everywhere have new departments for ornithological literature. Even the layman often buys the excellent new books of whose scholarly content and artistic appeal America may be proud.

An interesting example is the magazine with which your author is connected, the *Pheasant Fancier's*, *Game Breeder's*, and *Aviculturist's Gazette*. We began a little over a year ago with a mere bulletin ; to-day it circulates in every state and territory of the Union. Other journals are also well received.

All this has resulted in a public demand for the unusual species. This is being met partially by domestic breeders, but to a large extent by importations from the corners of the earth. Europe's exports to the Western Hemisphere are increasing : but Africa, the Near East, the Orient, New Guinea, Australia, and South America, are also supplying an ever-growing number.

The Budgerigar is at present enjoying great popularity in the American home. Because of its friendly nature, ability to talk and ease in propagation, it has made a market for itself comparable to any new fashion fad. But, fashions change, and other species will gain equal popularity. The exotic species of parrots are in ascendancy, and rightly so, because of their brilliant colours and adaptability to household training. And, of course, the canary is a classic pet.

Thirty-two years ago, my oriental pheasants took nearly every prize ribbon the fairs here had to offer. But I must confess that they were almost the only birds of their kind to be seen in this part of America ! To-day oriental pheasants are familiar members of most amateur collections, and certainly basic to every aviary. Any school child knows them.

But even more remarkable is the new crop of organizations in this field. In the past five years alone, over forty-five new groups have organized with serious motives. Nor are we any longer considered hobbyists. Congress must now reckon with bird enthusiasts as a first-class pressure group ! Rightly or wrongly, one large society recently has actually been a force in delaying the construction of a large federal power dam project because its members feared this would destroy a wildlife area !

Like their forerunners in Europe, the American scientific organizations and societies stimulate interest in the preservation of unusual species, and keep the public informed on their care.

Yes, birds have achieved their place on the American scene. They have come out of the laboratories and museums into our homes and hearts. Breeding is now a recognized industry. Conservation is an accepted responsibility. Collecting is almost a national habit. These little feathered promoters put our best publicity experts to shame. For, once properly introduced, they are a product which really "speak for themselves".

It will be some time before birds on this continent have the popular understanding and respect which they enjoy in Europe. But there can be no doubt that they now have entered a "new world", and before long will become equally endeared to the American people.

A CONVERSATIONAL LOVEBIRD

By MARIE EARL-OLSEN (New York, U.S.A.)

Some time ago my Fischer's Lovebirds (*Agapornis fischeri*) had five babies. Usually I finger tame these funny little creatures much the same as the young Budgies. There was one in the nest which seemed to me to be particularly brighter than the others and I named him Scampy. We spent a great deal of time together—he liked to cuddle close to my neck and would run in and out of a paper bag retrieving buttons and bottle caps I would throw in.

At the time I happened to be training two young Budgies and had them with me the greater part of the day, sitting on my shoulder and running around my neck from one shoulder to the other. Scampy chose a place right under my chin to cuddle.

As he grew older he enjoyed perching on the play pen and became unusually friendly with Buddy, our famous talking Budgie. Usually Buddy enjoys the company of other birds, but being somewhat uncertain how he would welcome Scampy, I watched very closely.

Unlike most lovebirds Scampy made no pretence of biting Buddy's toes and apparently all was well for they got along beautifully and were always together. This probably being the reason that Scampy has learned to talk.

One day recently Scampy was on my desk where I was writing and I was sure I heard him say a few words. Continuing with my work as before and paying not the least bit of attention to him I watched him closely. On my desk is a shiny brass calendar which intrigues him immensely. Soon I heard him say "Pretty Boy" as plain as day. You may well imagine my astonishment when I heard him utter his first words.

He since has added "sweet" to this and I am anxiously waiting for the rest of the sentence for I am almost sure he is trying to say "sweet-heart".

This has convinced me that birds taken from the nest early are far superior as talkers. They have complete confidence in us at this early age and show such devotion.

To my knowledge there is but one other lovebird that talked. I believe he was a Peach-faced (*Agapornis rosicollis*) and owned, if I remember correctly, by someone in England. I understand this little fellow would sit on his master's shoulder, nip his ear, and say "naughty boy".

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BIRDS OF THE COLOGNE ZOOLOGICAL GARDENS

By MARVIN L. JONES (U.S. Army, Germany)

Of the eight major zoos of Western Germany to-day, the finest collection of birds is at Cologne. The zoo, having made the greatest change from war destruction to modernness, also has an admirable mammal and a small reptile collection. Not having the money of some of its sisters in Germany, it has, through skilful bargaining and business acumen, made a name for itself in the post-war zoo world. Its Director since May, 1952, Dr. Wilhelm Windecker, has added over 200 species of animals to the colony since his arrival, many of which are not to be seen elsewhere in the Federal Republic. The initial impression given to a foreign visitor is of a zoo that has suffered very much, but is trying very hard to make good once again. The buildings are for the most part very old and rather decrepit, but must serve till funds will permit replacement. The Monkey House in particular is in the same style as 1860, when it was opened, and some of the cages seem older. Paint is needed as are new bars and retaining walls, but the outside has been repaired quite well, and helps the overall picture. Only the Bird House can be called new, even though the shell of it was built in 1890. The interior is new, opened in the summer of 1952, in the style of Bronx Park, minus the balconies. The cages along one wall are for the larger birds such as toucans and hornbills, while the opposite side has smaller cages for the weavers and finches. All are wired in front and on the sides, and serviced from a rear alleyway; the wire and walls are painted cream colour and help cheer up the place somewhat. At one end of the building is a very large swamp type cage, with peat moss and a pool for the waders, and at the other two cages for monkeys, with smaller glass covered ones for the humming birds and sunbirds. These have plants and limbs, while the larger ones have perches and leaves on the floor. In one corner of the finch side are a series of glass-covered cages in tier fashion, the bottom for mammals and the top for the parakeets and lorries. The centre of the building has palms and benches for the visitors. A very interesting exhibit of winter shelters for the wild birds of the region is now being held in this space at the same time. The other two exhibition buildings are the Elephant House, a very old structure also, and the old Ostrich House made new as a combined Reptile and Winter House for the birds. The entire collection of reptiles is to be seen here in aquariums of varying size and varieties. Some of these are home-made and are very nice, featuring growing plants and dirt floors; some have pools, but others no water. The cages for the birds are of wire (reinforced) with connecting doors to

outdoor pens ; all are without tops, as are the pens. The centre cage has a large pool and is for the flamingoes. Pools flank the wall and create a more or less natural barrier to the cages for the crocodilians.

Scattered throughout the zoo are cages for birds, in temporary fashion, as a new run for the pheasants and related forms is under construction, and will be ready for occupancy by the end of December, 1953.

For the waterfowl are provided two large lakes with adequate breeding quarters ; these contain running water, so no danger of possible stagnation exists. The cranes and the swans are in a very large open lake area just near the main gate and about two blocks square. Several of the animals and birds are afforded complete liberty, such as the guans, tapir, and macaws. The latter have so far (the temperature has fallen below freezing on two occasions) been left out to seek shelter wherever they wish. The macaws prefer an open branch while the guans and tapir like thickets. None has so far proved of any trouble, and no bites have been reported, despite large numbers of children in the summer. Those in the zoo line can well understand the tension that these little devils can create in liberty animals.

On clear days a parrot school is held on the lawn just outside the Bird House and has proved a big hit with the visitors. It is very surprising what the Amazons can be taught with a little patience.

In all fairness to the Frankfurt Zoo, which also has a very large collection, Cologne has a better representation of the birds normally kept in a bird house, while Frankfurt leads in Accipitriformes, flightless birds, owls, and the herons. This zoo, however, lacks a good grouping of waterfowl despite a very large lake, and smaller cage birds. Likewise its Bird House is very old fashioned in keeping many of its inmates in cages similar to those used in pet stores, or very crowded. Both have their merits and rarities, but in my opinion Cologne takes the lead and has the finest specimens in plumage and colour. Taking them in order seen and not scientifically, we have in the new Tropical House a very nice male Eastern Cock of the Rock in full plumage, sharing a rocky, tropical planted cage with a number of sunbirds recently received from Africa, and as yet unidentified. This is the only Cock of the Rock in Germany and one of few in Europe. Antwerp has a female but no male. Sharing quarters in the same house are a single specimen of the rarely seen Indian Adjutant and a pair of Marabous, as well as a Saddle-bill, and one Secretary Bird. Proceeding along the walk toward the Bird House the next exhibit to catch our eyes is the large cranes' enclosure, filled with East and Western Crowns and Demoiselle, with a family of Mute Swans for company. The usually unruly Andean Geese are also to be seen here in the form of a pair, another pair are in the main waterfowl pond. Both get along very well with the other birds in contrast to all published

reports on this rare form of Magellan Goose. Just beyond the old bear dens and Lampeshausen, the village of rabbits, is the well-filled main waterfowl pond or *Teich* as it is called in German. A well-represented grouping is to be seen with many specimens which are newcomers from the Tilburg Zoo. The rarest are the Ashy-headed Geese, a young pair, and the typical Magellan Geese. A quartet of Spot-billed Ducks, two of the Black-backed Comb Ducks, and all the other waterfowl in the zoo are kept here, with the exception of the Coscorobas, which are on a small pond with the Bahama Pintails and the colourful Mandarins, Wood Ducks, and the Formosan Teal, with their equally rare cousins, the Maned Geese of Australia which are kept on a waterfall-made pond just in the rear of the main pool. Now within view is the main Bird House, a strange-looking structure reopened in 1952, and almost overcrowded with a well-rounded collection. The outdoor flying cage contains the Trumpeters, rare Orange-naped Imperial Pigeon, and Red-billed Green Fruit Pigeon, as well as the Illiger's Macaw, Pileated Jay, and a fine Magpie Jay of Central America. Flanking the two entrances are cages for the birds of prey, wire fronted with gravel flooring, and providing adequate room for all but the Condors. This trio came from Tilburg in the spring shipment, as did many of the collection. It is made up of a mature male and two immature specimens, a male and a female ; all get along very well so far. The Red Kite shares a cage with the Kestrels, and the fine Bateleur, a male just coming into colour, is their neighbour.

Once indoors the first sight is a mass exhibition of bill posters of zoos from other parts of Europe ; several are from the Eastern Zone and Holland. It is a very unusual thing to see a zoo boasting others in such a manner. The main building is very large, about equal to the London Zoo main building, and in the same style, except for the lack of cages in the centre. All but four are wire-fronted and have adequate skylighting, providing plenty of light even on rainy days. The light-coloured walls and cage fronts (in contrast to the dark greens and greys of many zoo bird houses) help this a great deal. The collection is arranged in no definite manner, but according to the neighbourliness of its occupants. Due to the limited number of cages some, such as the finch and tanager cages, are so filled that it is almost impossible to count the number seen.

Just right of the main door and proceeding in this manner, we first come to four little picture cages for the humming bird, sunbird (Tacazze), whiteeyes, and the sugar-bird. These are about $3 \times 2 \times 2$ feet, and have painted backbrounds. They are serviced, as are all cages, from the rear. That they agree with the inmates is proved by only three deaths since their opening, and these were delicate humming birds. A fluorescent lamp gives adequate light and shows

off the brilliant colours of the sunbird and humming bird very effectively. The next series of cages are large enough for all to get a good flight, and are for the larger types of birds. The fine collection of Rhamphastines are kept here, as well as the hornbills. They are well mixed, but agree with one another. The one toucan named ? is a semi-adult bird called *vitellinus* by Windecker, but which appears to be the same as *ariel* but with less red in the breast. I recall *vitellinus* has a yellow and white breast, so until further checking will leave as it is. The Ariels are very good and in fine colour, as is the young Toco. The Concave-casqued Hornbills are a true pair without a doubt, and next year plans are set to attempt to get them to build a nest and breed.

The formerly rare Hartlaub's Touraco, now seen in zoos all over the world, share their cage with a fine Buttner's, another *rara avis*. Farther down the line is one cage just full of pigeons and doves. Amongst the rarer species are the Amethyst Pigeon of Jobi, the Brown Witch Dove, and the Blue-headed Dove. All are great buddies and perch together very well. One cage in this grouping is filled with the fine myna collection, including the Lesser Hill, Bank, and Golden-crowned. The latter has never been seen before by me in any zoo and I would appreciate any comments on its previous exhibition. The end of the building has a large swamp cage with planted trees and shrubs providing cover and perches for its many inhabitants. The Burmeister's Cariama, never common, is here along with the Tiger Bittern and Ypecaha Wood Rail, the not too often seen (not in Europe that is) Florida Heron and Snowy Egret, and some Australian Crows (I don't know the real common name), likewise never seen before by me. The Red Bird of Paradise shares the next cage with the colies and the jays. It is a male and is now in full plumage, the wire-like tail feathers a very nice length. Among the many inhabitants of the crowded finch cages are Versicolor Buntings, Blue-backed Manakin, Mountain Cardinal, Green Cardinal, Diuca Finch, and Blue Thrush.

In the tanager cage the collection is comprised mostly of the smaller species, such as Three-coloured Calliste and Violet Euphonia, with a nice full-coloured Brazilian and a Black Tanager. The tier-arranged cages which provide space for the small mammals on the lower level, and birds on the upper, are the quarters of a pair of the Queen Alexandra's Parrakeet, not seen elsewhere in Germany, two Orange-fronted Conures, and an excellent specimen of the Red-backed Lory. The building has many more rarely seen forms and most of the commoner ones. Just outside the Bird House is the Parrot School, already mentioned, and the favourite tree of the at liberty Macaws. A grand and unusual sight is the full plumaged Red and Blue Macaw in full flight from this tree to another a full block away. The birds have now been at liberty since early spring, and have never attempted to stray from the zoo. Directly behind this open area are the new quarters

for the flamingoes, a natural swamp, which they seem to enjoy immensely. In the winter they will be brought in, as ice is the main danger, and usually forms overnight, when no one is around to break it up. At the rear end of the zoo in an area, still showing the ravages of war by bombing, are temporary cages for the pheasants, and a range for the Emus and Ground Hornbills. The Leadbeater's Ground Hornbill is one of the forms uncommonly seen. Returning to the main zoo area are passed the cages for common European birds, such as the Partridge and Tawny Owl. The majority of the rare birds have been listed, but many others, such as the Baillon's Aracari, Spot-billed Toucanet, Red-banded Aracari, Great Barbet, and the Sonnerat's Junglefowl, could be described as such also.

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THE NATIONAL CAGE BIRDS EXHIBITION OF 1954

By DAVID SETH-SMITH

The Show held at Olympia on the 7th, 8th, and 9th January, was certainly as good as any of the great shows that I can remember, and I have not missed many, in fact we are told that it was a record, a word I seem to remember hearing after every show I have attended. No doubt it was so, chiefly from the enormous and ever-growing popularity of the Budgerigar. Canaries and Budgerigars occupied practically the whole of the body of the hall, and for the foreign and more interesting of the British birds one had to ascend to the spacious gallery.

I am not particularly interested in Canaries nor, to any great extent, in Budgerigars, since they have become as domesticated as Canaries or poultry, but there is one particularly interesting point about them, namely the extreme rapidity with which they have become domesticated. I remember very well the first pair of blues (or I think it was a trio) exhibited at the Royal Horticultural Hall in November, 1910, by Mr. Pauvvels, of Belgium. They caused quite a sensation as they also did when, with their owner's permission, I showed them at a meeting of the Zoological Society. This was at that time the only variety, except the yellow, to appear in the Budgerigar, and now, forty-four years later, we see the bird changed in size and present in a great variety of colours and combinations of colour, and in this one show, numbering some 2,600 birds. This shows what can be done in a very free-breeding species by careful selective breeding. The Budgerigar is surely quite unique in the way it has taken to a domestic life.

The class for Lovebirds and Parrotlets was well filled, mostly by

Fischer's Lovebirds. This is a fine species which I hope will not be allowed to dwindle and die out, as has been the case with some of the Lovebirds such as the Black-cheeks and the once common Madagascar. There were some excellent Masked, Peach-faced, and Red-faced, as well as Blue-winged Parrotlets.

There was a beautiful Golden-mantled Rosella which quite put the Common Rosellas in the shade, a fine pair of the now very rare Derbyan Parrakeet, some very good Stanleys, Plumheads, and Cockatiels, as well as a grand pair of Queen Alexandras. I wish they would not persist in calling this bird the "Princess of Wales' Parrakeet". There has been only one Queen Alexandra, and it was in honour of this great lady that Gould named the bird, although she was Princess of Wales at the time.

Amongst the Lories and Lorikeets was a beautiful pair of the very rare and pretty Musschenbroek's Lorikeets, as well as several of the typical Lories. Hanging Parrots were represented by Blue-crowned and Vernal. There was a good Hawk-head, two female Eclectus, and a lovely Lear's Macaw.

There were two classes for the commoner Waxbills which were well filled, while that for the rarer Waxbills and their allies contained some such gems as Violet-ears, Dufresnes, Painted Finches, and others not often seen. Parrot Finches, Gouldians, and other Grass Finches were well represented.

Amongst other seed-eaters one noticed several species of Cardinal and the American Evening Grosbeak, Yarrell's Siskin, Golden Sparrows, and the rare Green Twinspot. I was interested to see a pair of the charming Painted Quails, delightful birds for a grassed aviary, but not suitable as cage birds.

The Zebra Finch seems to be becoming as much a domestic bird as the Budgerigar. There were no less than four classes for it, one for the normal type, one for "Cinnamon and Fawn," one for "White, Cream, Silver, and Albino", and the fourth for "Pied and any other colour". I must say the Zebra in the form and colour in which Nature made it is beautiful enough for me.

The foreign soft-bills formed a grand collection. The humming birds of which some half-dozen species were shown, appeared to be in excellent condition, and seemed to be enjoying themselves in spite of the comparatively low temperature prevailing, though the management had done everything possible to warm that part of the hall. Sunbirds, too, were well represented by such showy species as the Amethyst, Malachite, Tacazze, and Amethyst-rumped, a lovely group which did not in the least find fault with their conditions. Sugar-birds and Zosterops too looked very good, while the Tanagers, both large and small, were in great force and of many species. They are amongst the world's most colourful birds, but not more beautiful

than others we were still to see ; Niltavas in black and blue take a lot of beating, and the pair shown had as their neighbours the Natal and Cape Robin, both most attractive species. The Thrushes and Fruit-suckers were also a nice lot with the very handsome Blue and so-called Common Rock-Thrush, the Orange-headed, and Olive-backed Thrushes.

Some of the Starlings are amongst the most showy of birds, and here were nearly a score of these from the brilliant Long-tailed and Purple-headed Glossy and the Spreos to the more sombre-hued Pagoda Starlings ; and of their near relations, the Mynahs, we were introduced to several that were expert talkers.

There were some good Toucans, Blue Pies, and Jays, and a class of only two entries for Doves contained a pair of Barred and a pair of the very pretty and rare Plumed Doves from the dry parts of Australia, very desirable in an aviary where desert conditions can be maintained, but not looking their best in a cage.

The last classes in a show of this kind are generally the most interesting, and may produce some thrills, because they generally contain birds that are quite out of the ordinary run. The three classes concerned were for " All other " softbills (1) not larger than a Pekin Robin, (2) Larger than a Pekin Robin, but not larger than a Glossy Starling, and (3) Larger than a Glossy Starling. In (1) there were Red-headed Manakins, delicate little black birds with bright red heads, Blue-backed Manakin and Coppersmith Barbet. In (2) were a pair of the rare African Jacana or Lily-trotters, birds only suited to an aviary containing water-lilies, a Wilson's Bird of Paradise in very good condition, a Blue-winged Pitta, Green-winged Malkoha (a species of Cuckoo), Brown Thrasher, Babblers, and Barbets ; all very rare birds. The last of these three classes contained the most spectacular birds of all, namely three species of the larger Birds of Paradise, a Greater, a Red, and a Twelve-wired, all in lovely condition, though the last had broken off the delicate tail-wires from which the species derives its name. The judges awarded to the Greater Bird the prize for the best Foreign Bird in the show.

British Birds were well represented, with no less than six well-filled classes for those bred in cages or aviaries. The breeding of British birds in captivity has progressed steadily since foreign birds became more difficult to obtain than formerly, and much can be learnt of the breeding habits of even our commoner birds by this means, as was proved by Dr. David Lack when he bred the common Robin in an aviary.

British soft-bills were a lovely lot, such mites as Wrens, Willow Warblers, and Tree-Creepers being in perfect condition, and proving the great skill of their owners. This section was of great educational value to all who wished to see, in the flesh, some of our least common

native species such as the Black and Common Redstarts, Shorelark, Fieldfare, Ring Ouzel, Golden Oriole, or Great Grey Shrike. The Waxwings were, as usual, looking sleek and beautiful. They are the most contented of birds so long as they can gorge themselves on the food they like. I used to find that soaked currants suited them very well and did not make them too fat, which Waxwings are very inclined to become.

On the whole, the birds were shown in suitable cages, though there were some exceptions, but I would like to protest against the present fashion of painting the bars of the cages white. If we painted the wire-netting of our aviaries white, the birds would be practically invisible, so we paint them black, and the birds show to perfection. These white cage-fronts only dazzle the eyes and spoil the view of the occupant.

From this brief and incomplete review it will be gathered that the National Exhibition has been a grand show, splendidly organized by the proprietors of *Cage Birds*, to whom all interested in aviculture owe a deep debt of gratitude. It has been a great undertaking and we are told that any profits are to be handed over to charity.

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LONDON ZOO NOTES

By JOHN YEALLAND

Some ninety birds have been added to the collection during the past two months. The presentations include two Bushy-crested Hornbills (*Anorrhinus galeritus carinatus*), new to the collection ; a Great Indian Hornbill (*Dichoceros bicornis*) ; a Bay Wood Owl (*Phodilus badius*) ; two White-crested Jay Thrushes (*Garrulax leucolophus*) ; two White-throated Jay Thrushes (*G. albogularis*) ; two Striated Jay Thrushes (*Grammatoptila striata*) ; three Blue-cheeked Barbets (*Cyanops asiatica*) ; three Hodgson's Barbets (*Thereiceryx lineatus*) ; three Larger Racquet-tailed Drongos (*Dissemurus paradiseus*) ; two Barred-shouldered Doves (*Geopelia humeralis*) ; a Cape Dove (*Æna capensis*) ; two Blue-spotted Wood Doves (*Turtur afer kilimensis*) ; two Blue Sugar Birds (*Dacnis cayana*) ; a Black Tanager (*Tachyphonus rufus*) ; two Indian White-eyes (*Zosterops palpebrosa*) ; a Pale Rock Bunting (*Fringillaria impetuanii*), new to the collection ; two Egyptian Geese (*Alopochen aegyptiacus*) ; a Goosander (*Mergus merganser*) ; two St. Thomas Conures (*Eupsittula pertinax*), and two Rosy-faced Lovebirds (*Agapornis roseicollis*).

A pair of Tri-coloured or Prince Maximilian's Jays (*Uroleuca cyanoleuca*) have been purchased. This handsome bird has never before been exhibited here, but was once in Mr. Whitley's collection.

An Edwards' Pheasant (*Hierophasis edwardsi*) ; ten Amethyst-rumped

Sunbirds (*Cyrtostomus zeylonicus*), and four Purple Sunbirds (*C. asiaticus*) have been received in exchange. Four Ornate Lorikeets (*Trichoglossus ornatus*); five Forsten's (*T. forsteni*); a Black Lory (*Chalcopsitta atra*); three Black-capped (*Domicella lory*); three Purple-capped (*D. domicella*); one Chattering (*D. garrula*), and three Yellow-backed (*D. g. flavopalliata*) have been deposited, together with four Crowned Pigeons (*Goura cristata*); ten Nutmeg Fruit Pigeons (*Myristicivora bicolor*); a Javan Mynah (*Gracula intermedia javana*), and three Yellow-crowned Bulbuls (*Trachycomus ochrocephalus*).

Two Black-footed Penguins have so far been bred and the Emus, which usually nest in February, have laid three eggs.

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BRITISH AVICULTURISTS' CLUB

The forty-first meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 13th January, 1954, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, W. D. Bell, Miss K. Bonner, Mrs. V. M. Bourne, Captain A. Clarence, T. R. W. Crewes, W. D. Cummings, A. H. D'Aeth, J. O. D'eath, Miss S. A. Fothergill, J. C. Garratt, Miss D. Gask, T. Goodwin, H. J. Harman, R. E. Heath, H. J. Indge, Miss E. M. Knobel, Miss M. H. Knobel-Harman, G. S. Mottershead, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, R. C. J. Sawyer, H. A. Snazle, P. Sutton, R. A. Taylor, E. N. T. Vane, N. S. Walker, H. Waller, C. H. Wastell, H. Wilmot.

Guests : Dr. K. Aylwin-Gibson, J. Bailey, D. Bell, M. D. Bell, Mrs. W. D. Bell, Lieut.-Col. C. L. Boyle, Mrs. C. L. Boyle, S. Croucher, Mrs. S. Croucher, Miss H. Gentry, F. S. George, P. Hansen, Mrs. H. J. Indge, Mrs. N. Masters, Mrs. S. Murray, Mrs. J. H. Reay, Mrs. D. Seth-Smith, T. Spence, Mrs. P. Sutton, Mrs. R. A. Taylor, Mrs. C. H. Wastell, Miss H. Wastell, Mrs. H. Wilmot, A. J. Woods, Mrs. A. J. Woods.

Members of the Club, 33 ; guests, 25 ; total, 58.

Lieut.-Col. C. L. Boyle showed the Carling Conservation Club coloured sound film "Ring-neck Pheasant". This film depicts the life-history of the Ring-neck, introduced into Canada mainly for sport, so it is perhaps not altogether surprising that it commences with the shooting of several pheasants and ends in the same way. It, nevertheless, is of great interest and contains some really excellent close-ups.

J. C. Garratt showed his coloured film "Humming Birds". The title inadequately describes the contents of the film as, in addition to Humming Birds, it shows many other birds in the aviaries at "Wychwood". No particular sequence is followed and we are shown indis-

criminatingly pictures of Parrakeets, the gardens, and Sunbirds, Sugar Birds, and Humming Birds in colourful natural surroundings. The film may be best described as a very creditable effort by a real bird enthusiast.

The next meeting of the Club is on **10th March, 1954.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

J. M. Spence, Cape Town, writes : " I have just bred a young Cape Robin, *Caffrornis caffra caffra*, and as far as I know it has not been bred in South Africa before."

* * *

H. Murray reports : " I managed to get a second generation of my Guiana Parrotlets, but it was so late in the year, November-December, that they did not thrive and died when six weeks old."

* * *

The Society holds a very large stock of back numbers of the AVICULTURAL MAGAZINE from which it is generally able to supply the needs of members who require particular copies. Inquiries should be sent to the publishers, Messrs. Stephen Austin and Sons, Ltd.

* * *

D. M. Reid-Henry is forming a collection of skins of British and foreign birds, both common and rare. He would be glad if members having the misfortune to have any birds die would send the bodies, as fresh as possible, to him at 43 West View Drive, Woodford Green, Essex.

* * *

Our publishers take a bow. A member in Alabama writes : " The printers, the binders, the Editor, and all concerned with getting out the AVICULTURAL MAGAZINE do a beautifully magnificent job. The now rare privilege of seeing a task done with infinite care and pride is due to the above mentioned. I gratefully thank them for a wonderful magazine throughout."

* * *

J. W. Clemitson reports for 1953 : " My old pair of Cockatiels have bred eleven young, making thirty-three in three seasons. The most interesting event has been one young Crimson-wing which I hand-reared from three days old. The Crimson-wing egg was incubated for two weeks under a big split-fallow Budgerigar hen, and then completed by my Stanley hen, who refused to feed the youngster. Hand-rearing has taken four months before the youngster was entirely independent. However, it was well worth it as the youngster is strong and healthy and, of course, very tame."

Dr. Alan Lendon writes : " I should like to take this opportunity of thanking you personally and through you, the members of the Avicultural Society, for many kindnesses and much hospitality during my stay in England. I have seen a great deal of interest and have been cordially welcomed wherever I have been, and I shall always have the most pleasant memories of English aviculturists and of their collections.

I must ask you to make a correction in the next issue of the magazine. In the last [1953, 176] I stated that Sir Edward Hallstrom had bred the Red-eared Conure (*Pyrrhura cruentata*) last year. I have recently seen the true *P. cruentata* (a very lovely bird) at Wassenaar, and it is certainly not the bird Sir Edward bred. I rather think now that it was the Red-bellied that he bred, but I will try and confirm this later."

* * *

Dr. E. Béraut writes from Rio de Janeiro : " My collection of Humming Birds is still doing well. I possess one *Heliactin cornutus* in wonderful plumage, a young bird which has moulted in my aviary, and my best bird. I believe I now know the best way to keep the more difficult species : *Heliactin*, *Heliothrix*, and particularly *Pygmornis*, which live and moult perfectly, mostly thanks to a massive production of fruit flies (*Drosophila*).

" I also use a new way of transportation ; instead of putting the Humming Birds in a cage, which creates difficulties in airplanes, I place each of them in a small bag of cloth with a small hole for the head to stick out. They are thus obliged to keep quiet and do not become exhausted. Every hour, I take them out of the box where I keep them during the trip and make them drink. They can travel for twenty-four hours under such conditions without being tired."

A. A. P.

* * *

REVIEWS

PHEASANT BREEDING AND CARE. By JEAN DELACOUR.
Illustrated. Fond du Lac, Wisconsin : All-Pets Books, Inc.
1953. 98 pages. \$3.00. (Distributed in England by Bailey Bros.
and Swinfen, Ltd., 46 St. Giles High Street, London, W.C. 2.)

This attractively illustrated and printed book is a completely revised and enlarged edition of the book on Ornamental Pheasants by Charles F. Denley, which proved so popular with and helpful to fanciers, both amateur and old hands. Mr. Delacour writes with authority and precision on a subject with which he has been familiar for many

years, both at first-hand and through the experience of his trusted aviary attendants in France.

The encouraging tone of the book, as evidenced by such sentences as "All the pheasants, with very few exceptions, live and breed well in captivity", should go far to make recruits for the hobby and sport of pheasant-keeping. Moreover, the suggestions for keeping these handsome birds are of such a useful and practical nature as to enable almost anyone to apply them with satisfactory results.

The descriptions of the various species are very compact and to the point—sufficient to enable the reader to recognize and identify them. The accompanying black-and-white illustrations are excellent close-up photographs of birds in typical poses; they enhance the practical value of the text measurably.

Detailed suggestions for the construction of runs, shelters, etc., are given, all based on actual and successful experience. The sections devoted to breeding and to feeding are especially good—two phases of pheasant-keeping which must be mastered to make a success of this fascinating pastime or business. Of special interest and value is the chapter entitled "Pheasant Health and Disease Control", contributed by Dr. Jungherr, who heads the Department of Animal Diseases at the University of Connecticut. One of the most valuable aspects of this handy up-to-date book is the excellent bibliography printed at the end. It enables the reader to delve more deeply into whatever phase of pheasant-keeping happens to intrigue him.

CARL NAETHER.

* * *

DIE VÖGEL DES LANDES SACHSEN (The Birds of Saxony).

By DR. RICHARD HEYDER. With 20 portraits and other illustrations. Leipzig: Akademische Verlagsgesellschaft Geest & Portig K.-G. 1952. 467 pages. Price: DM. 28.00.

In this comprehensive and carefully done research work we are given authentic and ample information concerning both the occurrence as well as the distribution of birds in Saxony.

The author has collected his data over a period of forty-odd years, has verified them as best he could, and has presented them in an interesting manner. His source materials—bibliography—give in chronological order 1,167 references—an astounding wealth of materials on which to base his findings. This bibliography is one of the most valuable parts of Dr. Heyder's book, since it affords the reader an excellent overview of the entire field, indicating at the same time the painstaking thoroughness with which the author performed his large task.

The numerous species of birds occurring in Saxony are given separate and detailed listings in this comprehensive book. Each listing explains the frequency of occurrence as well as the distribution of the bird or birds in question, supported by references. Anyone seeking dependable information regarding the many species of birds occurring in Saxony will find this book a rich source.

A detailed alphabetical index of places—towns and villages—where certain birds occur as well as an alphabetical index of the scientific names of the birds of Saxony round out this practical work.

CARL NAETHER.

* * *

PARROTS EXCLUSIVELY. By KARL PLATH, Curator of Birds, Chicago Zoological Park, CESSA FEYERABEND, and Dr. IRVING E. ALTMAN. Illustrated. Fond du Lac, Wisconsin: All-Pets Books, Inc., 1953. 54 pages. \$1.25. (Exclusive British Distributor: Bailey Bros. and Swinfen, Ltd., 46 St. Giles High Street, London, W.C. 2.)

This well-illustrated book, with colourful paper cover, is representative of the practical guide-books which All-Pets, Inc., is issuing in increasing numbers. Three authorities, each one thoroughly conversant with his or her subject, have pooled their experience and their knowledge to produce this handy and highly informative book on parrots, which are now in their hey-day of popularity both in Europe and in the United States.

Following his introductory comments on feeding, caging, and breeding, Karl Plath describes in pithy, specific language the different species of parrotlike birds, beginning with the Amazons, followed by the Macaws, Conures and other American parrakeets, Lovebirds, Cockatoos, and, finally, Cockatiels. Some excellent black-and-white illustrations enhance the text noticeably.

The section devoted to "Personality and Training" is indeed interesting, dealing as it does with the remarkable ability of parrotlike birds to respond to human training, and citing many fascinating and some unique instances of unusually well-trained birds. The reader is given practical suggestions as to which species of parrotlike birds are likely to become good talkers, when they should be purchased, and how they should be taught.

The final portion of this handy book presents practical hints on how to keep your parrotlike birds in good health for many years. It is therefore one of the most important in the book; it was written by Mr. Altman, a veterinary doctor.

The illustrations were done by Karl Plath and also by Douglas Tibbitts, staff illustrators for the Chicago Natural History Museum.

All in all, this is a stimulating book on a very popular subject, filled with practical hints, which should find a permanent place on every bird-fancier's bookshelf.

CARL NAETHER.

* * *

NOTES

BREEDING OCELLATED TURKEYS AT THE ROTTERDAM ZOO

With reference to my information in this Magazine, No. 5, Vol. 58, September-October, 1952, it may be of interest to mention the breeding results obtained in 1953. The hen (of the same pair) laid from 13th May until 18th June (rather late in the season) 14 eggs, all fertile. Ten chicks hatched, five of which had bad (crooked) toes. Eight chicks were raised, the two that died were faultless. The sex-ratio was about fifty-fifty.

F. J. APPELMAN.

* * *

CORRESPONDENCE

THE MASKED FINFOOT (*Heliopais personata*)

I write to inquire if any member of the Society can give any information as to the above bird. Has the Finfoot ever been bred in captivity, and for that matter has it ever been shown in a U.K. zoo? I think, am not too certain, I once saw a Finfoot fly across a stream in Upper Assam. But I have never seen it in captivity.

C. BUCKINGHAM JONES.

DIBRUGARH,
ASSAM.

[We have no information regarding the importation of this bird, and regard it as unlikely.—ED.]

MOUSTACHE OR BANDED PARRAKEET (*Psittacula a. fasciata*)

This bird is very common in India. In captivity it seems difficult to breed, at least not many definite successes have been recorded. I put this down to the fact it does not stand captivity very well.

I have lost, I suppose, nearly a dozen birds in the last two years. Only one did I manage to keep alive for any length of time, a female which I had for nearly that period. All the rest died during the quarantine period I always give to new birds on arrival, or within the next three to four months.

And always the same complaint—pneumonia—save one killed in a hailstorm. At least the symptoms are those of pneumonia. I have no *post-mortem* facilities here. The bird is in rude health one minute, sick the next, and dead within 6–8 hours. All the pneumonia symptoms as set out in Tavistock's *Parrots and Parrot-like Birds*. My last two casualties were quite recent. As soon as the birds showed signs of illness, I treated them with Sulphamethazine, but to no effect. The disease is so rapid the drug seems to have no time to take effect.

But what causes the disease?

I was and am anxious to breed Moustache Parrakeets. I like the birds. But they have beaten me. I just cannot keep them alive, and I think I am not alone in this. A certain zoo in India seems to have the same trouble, at least I have noted a succession of these birds, following on casualties presumably. And it cannot be the climate, chills etc.; *P. a. fasciata* is indigenous.

Can any member of the Society throw any light on how to keep the Moustache Parrakeet in good health in captivity?

C. BUCKINGHAM JONES.

DIBRUGARH,
ASSAM.

BREEDING PARROTLET HYBRIDS

I have read the letter from H. Wildeboer in the AVICULTURAL MAGAZINE, November-December, 1953, referring to my Parrotlet article. Of course I have read Neunzig several times, but I can only say that perhaps he is speaking about another sub-species of the Parrotlet family. The legs of all my birds are of nearly the same colour, differing only a little from flesh-coloured to greyish flesh-coloured, but not according to species. My Green-rumped Parrotlets are not bigger than my Blue-rumped; if two old cocks perch side by side, the Blue-rumped looks definitely the bigger.

J. DALBORG-JOHANSEN.

GRAABRODREPLADS 6,
ODENSE, DENMARK.

BREEDING RED-BELLIED CONURES

I have been successful with my Red-bellied Conures (*Pyrrhura frontalis*) this year. The hen laid in June, and after incubating for approximately 30 days, hatched out two young in the first part of July, which left the nest 45 days later. The hen incubated alone, but the young ones were fed by both parents. They used dry seed, sprouted seed, and mostly ripe apple and pear as rearing food.

When the youngsters left the nest they were fully feathered, nice birds very much like their parents, but a little duller in colour and with shorter tails. The parents, especially the cock, fed them for nearly a fortnight after they had left the nest. The old birds did not feel inclined to start a second brood, but after a month or two the hen became very bored with the youngsters, and I transferred them to another cage. The breeding cage, only 80 cm. long, was placed in my bird-room with a nest-box (formerly used for Bourke's) placed outside.

I am sorry I cannot give more exact information about the eggs and dates, but I dared not disturb the nervous birds too much.

J. DALBORG-JOHANSEN.

GRAABRODREPLADS 6,
ODENSE, DENMARK.

* * *

CORRIGENDUM.—Volume LIX, No. 6, November/December, 1953. Page 209, line 31, for "fecal sacas" read "faecal sacs".

* * *

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Hen Blue-rumped Malay Parrot.—J. W. CLEMITSON, 25 St. Paul's Gardens, Whitley Bay.

Severn Wildfowl Trust Annual Reports, 1947-48, 1948-49.—R. NEWLAND, 93 Arne Avenue, Parkstone, Dorset.

Pair of 1952 White Peafowl, and White and Javanese Green Peafowl Eggs.—P. J. GLOVER, Delamore Farm, Cornwood, South Devon.

Hanging Parrots—cock Vernal, hen Blue-crowned.—G. E. WHITMORE, 168 High Street, West Bromwich, Birmingham.

Pair of Demoiselle Cranes, acclimatized, for Spring delivery.—J. D'EATH, The Grove, Hadley, Barnet, Herts.

Tui, Tovi, All-green, Canary-winged, Lineolated Parrakeets; Conures, all species, single or pairs.—A. A. PRESTWICH, 61 Chase Road, Oakwood, London, N. 14.

Hens—King, Crimson-winged, Pileated, and Splendid: also cock Roseate.—V. J. LUCAS, Park House, West Rasen, Market Rasen, Lincs.

FOR SALE

Hen Barnard's Parrakeet.—V. J. LUCAS, Park House, West Rasen, Market Rasen, Lincs.

AVICULTURAL MAGAZINE, back numbers, uniformly bound in excellent condition, complete series up to 1946 less Vols. 1 and 3. Vol. 3 unbound, one monthly part missing. From 1947 to 1953 individual magazines unbound in mint condition. £45 for lot. J. GILLEN, Ballycraigy, Ballymena, N. Ireland.

WATERFOWL RINGS

Members are reminded that the Society's special blue rings are always available. All Waterfowl in collections, both public and private, should carry them.

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		s.	d.
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Requests for rings should be addressed to the Hon. Secretary, Avicultural Society, c/o Zoological Society of London, Regent's Park, London, N.W. 1, from whom all particulars can be obtained.

POST-MORTEM EXAMINATIONS

Attention is drawn to the following rules:—

Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. W. Lawrence, The Zoological Society of London, Regent's Park, London, N.W. 1.

Rule 2.—A fee of 10s. and a stamped addressed envelope MUST be enclosed with the bird.

Rule 3.—No body or skin of any bird will be returned under any circumstances whatever.

ARTHUR A. PRESTWICH,
Hon. Secretary.

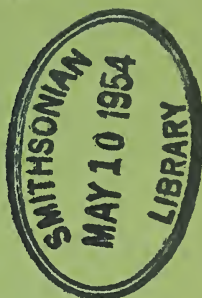
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AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

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Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

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The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



MOUNTAIN BLUE ROBINS
Adult birds and young.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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MARCH-APRIL, 1954

THE BREEDING OF THE MOUNTAIN BLUE ROBIN

(*Sialia currucoides*)

By KENNETH A. NORRIS (Purley, Surrey, England)

Owing to the very strict protection of the Blue Robins in their native countries of Canada and North America, these birds are familiar only to the few aviculturists in England who have been fortunate enough to procure the few specimens which have so rarely been imported during recent years. Of the three species, *Sialia sialis*, *S. mexicana*, and *S. currucoides*, the latter is probably the least known.

Its range includes Western North America and Canada, from the West Coast east to Manitoba and north to the Yukon and Mackenzie Valley. During the past few years it has been extending its range eastward and is said now to be more or less well established as far as central Manitoba.

According to Taverner's *Birds of Canada*, its choice of nesting sites is very varied and it is equally at home in the hollow cornices of buildings, dead tree stumps, old Woodpecker holes in telegraph posts, or in nest-boxes hung about the buildings and trees of the prairie homesteads. In wild barren country it is found nesting in crannies in the rocks and cliffs—in fact, its only requirement seems to be a suitable hole to shelter the nest, irrespective of where it may be.

Mr. Reid-Henry's excellent portrayal of a pair of adult birds and one of their young renders a detailed description of their plumage unnecessary. It will be seen that they have much longer flight feathers and tail than our own familiar Robin, the legs being comparatively short and set well back on the body. As a result, their movements on the ground are awkward and the wings are used constantly to assist progress.

When resting on some favourite post or branch they assume an upright posture, the legs and feet being completely covered by the lower breast feathers, and in this position they more closely resemble

the Flycatchers in appearance. They will "hawk" after any flying insect which may come within range and seldom fail to catch a mealworm thrown into the aviary. Their remarkable agility on the wing, combined with their general structure and rather flattened beaks, suggests that, in a natural state, they must subsist largely on insects taken on the wing.

I was fortunate enough to receive an adult pair of these very lovely birds in June, 1952, and, as is my usual practice with new arrivals, they were housed in a large cage in the bird-room for the first month.

They settled down quickly and took readily to insectivorous food with the addition of a few gentles and six mealworms each, per day.

As weed seeds and soft fruit are said to form an important part of their diet in a wild state, these were also supplied at first, but the birds have shown no inclination even to sample them and they have since been discontinued.

In July they were moved to an outdoor, unheated aviary, measuring 9 feet by 5 feet, of which 3 feet is entirely enclosed to form sheltered sleeping quarters, the remainder being open wire flight, fitted only with artificial perching. This aviary they shared with Cedar Waxwings, an American Crossbill, and a pair of Golden Pheasants, but as the latter soon formed the habit of flying up to the various food dishes, either upsetting them or consuming all the food before the smaller birds had fed, they were subsequently removed.

The Robins remained in this aviary throughout the autumn and winter. Early in the following April the hen commenced to carry nesting material to an open-fronted nest-box measuring 6 inches by 4 inches by 6 inches, which was hung in the open flight, beneath the overhanging eaves of the sleeping quarters.

From past experience I have found it important, if success is to be achieved under artificial conditions, not only to provide suitable nesting sites but also the actual materials with which a species is accustomed to build, especially for the lining of the nest. A striking example of this had been provided by the Cedar Waxwings, which had nested in the same aviary the previous year. These birds, which had arrived in immature plumage, proved to be inexperienced in the art of nest construction, even failing to bind the materials successfully in a shallow woven cradle that had been provided as a foundation. As the hen was obviously on the point of laying, I decided to assist by supplying a "pre-fab", using for this purpose a very substantial Robin's nest from which the young had recently flown.

This the Waxwings accepted with every sign of satisfaction until they discovered the hair lining which was evidently not according to Waxwing specification, for together they stood on the edge of the nest and literally ripped it out. They then quickly collected a quantity of small scarlet feathers shed by the Golden Pheasant and with these

formed a new lining to the nest in a remarkably short time, the first egg being deposited on the following day.

I was unable to find any description of the Blue Robin's nest in the books I had available and as soon as it became apparent that the hen intended to build, I supplied a variety of materials, including dead leaves, moss, fine roots, strips of birch bark, partly dry grass, small twigs, short lengths of soft hemp string, hair, and feathers. From this assortment she selected only the grass with which she formed a flimsy nest, lining it with finer grass.

She laid four days after commencing to build and incubated steadily for sixteen days, after which she left the nest and on investigation I found it to contain only one pale blue, unmarked egg, which was infertile.

This was no surprise as the cock had completely ignored the whole proceedings and had, in fact, displayed some hostility to any close approach of the hen during the early stages of building.

During the second week of May, however, he started to display, perching near the hen, in a crouching position with wings held partly extended and fluttering, thus showing to full advantage the brilliant blue of his upper parts, or hovering before her, with a blade of grass in his beak. Between displays, he constantly sang, or perhaps it would be more accurate to say "warbled", for so soft and sibilant were his notes that often only the movement of his throat revealed that he was singing.

Whenever mealworms were thrown into the aviary, he dexterously caught them in the air as a Flycatcher would take gnats or other winged insects and then, hovering directly above the hen, would offer them to her. Should she fail immediately to accept, he would gently tap her on the back with his feet. If she still failed to respond, he would then alight beside her and thrust the insect towards her until she took it in her beak. Even then it would sometimes be passed backwards and forwards several times before the hen finally swallowed it, and it was not until she had accepted three or four insects in this way that the cock would himself feed. Thus encouraged, the hen again commenced building, assisted occasionally by the cock who, however, did little more than carry nesting material which he passed to her at the entrance to the box, never himself entering or attempting to take part in the actual construction of the nest.

On 19th May she commenced incubation and although she usually left the nest when I visited with mealworms, she invariably returned almost immediately, nor did she ever appear when anyone else approached the aviary.

On 2nd June it became evident that young had hatched and both birds started carrying mealworms and gentles to the nest, having first prepared them by well chewing them between their mandibles until

they were limp and lifeless. Up to six were carried in the beak at a time and were very quickly distributed.

Dr. A. G. Butler, describing his success in breeding the Eastern Blue Robin, *S. sialia*, states that his birds never gave the young food which was not partially digested, feeding them from the crop, on a mixture of insects, vegetable, prepared insectivorous food, and also half digested and softened seed (*Foreign Birds for Cage and Aviary*, Part I, p. 25).

My birds *never* swallowed the insects and although they took prepared food readily before the young hatched, this was completely ignored when feeding commenced. Only live food was then taken and was fed by the beak and not by regurgitation.

Feeding continued for ten days and then suddenly ceased and the parent birds appeared to lose all interest in the nest. Examination of the nest-box and a thorough search of the aviary failed to reveal any signs of the young birds. On the following morning I noticed that the box was almost completely filled with hay and found that mice had taken possession, no doubt having dragged out the young birds and carried them below ground during the previous night.

Towards the end of June the cock again started to display and within a day or so the hen was building in a similar box, hung in the sleeping quarters, in a position which was fortunately inaccessible to mice.

On 2nd July she commenced incubation for the third time and on the 17th July both birds were again carrying food to the nest.

Until now the Robins had taken little notice of the other inmates of the aviary but possibly due to the loss of their previous brood, they suddenly became aggressive, particularly towards the American Crossbill. They continually drove it from perch to perch until the cock finally succeeded in pinning this unfortunate little bird to the ground where it commenced systematically to tear the feathers from its back, and would undoubtedly have killed it had I not been in time to separate them.

Having removed the Crossbill to another aviary, I thought it advisable also to remove the pheasants in order to ensure that the Robins should have all the food they required but the Waxwings were allowed to remain as, strangely enough, these birds were still completely ignored by the Robins nor did they ever attempt to approach the nest or interfere in any way.

After the birds had been feeding for a week, I ventured to look into the nest when the parents were out in the flight collecting insects, and found it to contain three small young, clothed in dense black down, relieved only by the conspicuous yellow line of the gape.

At this stage, the hen began to display resentment towards the cock if he approached the nest and although he made desperate, and occasionally successful, attempts to reach the young, she finally refused to allow him even to enter the sleeping quarters.

During the second week I again looked in the nest, to discover that the young had made quite remarkable progress and were well fledged, the colouring being very similar to that of the adult hen except that the breast was heavily spotted.

On 7th August I noticed the three young sitting, crowded together, in the entrance to the nest box. As soon as they saw me they slipped back and crouched in the bottom of the nest, but on the following morning one was on a low perch in the open flight and in the early afternoon it was joined by the other two.

As soon as the young left the nest, the hen again allowed the cock to approach them and both birds fed them at frequent intervals, no longer troubling to prepare the food but thrusting the wriggling insects well down the youngsters' throats. If an insect was inadvertently dropped, it was immediately retrieved by one of the parents and again thrust into an open beak and it was particularly interesting to note with what care each young bird was fed in turn. On no occasion did I see one bird receive a double dose, however clamorous or persistent it might be.

Just a week after the young appeared in the open, they commenced themselves to pick up insects, deliberately dropped in front of them by the parents and very soon afterwards became quite independent although the old birds continued to shepherd them into a sheltered position each night.

On 12th September and without any perceptible moult, intense blue began to appear on the wing butts of two of the young birds, and on 15th September I noticed blue also appearing on the crown of the head, immediately above the beak, followed a few days later by odd blue feathers on the breast.

The third bird remained unchanged in colour but the spotting of the breast began to fade and it was now obvious that there were two cocks and a hen. At this stage fighting commenced between the old and the young cocks and although I imagine that the adult bird was the aggressor in the first instance, the young soon became equally ready to start trouble, especially at feeding time. The old birds were already moulting heavily and I therefore caught up the young and placed them in a large cage in the bird room.

As soon as the young had been removed the parents resumed their normal daily consumption of prepared food and the live insect supply was reduced again to a small number of gentles and six mealworms each.

I subsequently disposed of one young cock but the remaining pair are still together and are doing remarkably well. The plumage of the cock has changed little since he was transferred from the aviary and it is now apparent that he will not assume his full, adult colouring until he undergoes his first complete moult but the young hen is practically indistinguishable from the old bird. Until recently they refused all

food except live insects, but are now taking a certain amount of insectivorous mixture and occasionally a very little finely chopped date.

During the whole period of nesting and rearing, nest sanitation was strictly observed, the excreta being removed by the parents and all deposited on a cross-bar of the flight door, the most distant point from the nest to which the birds had access. Even when the young left the nest, this habit of "clearing up after a meal" persisted for a few days, the old birds collecting and removing the excreta from below the perch on which the young were sitting.

Gentles and mealworms, in equal proportions, were the only live food supplied from the time of hatching until the young were removed from the aviary and were consumed at the rate of four ounces per day, an average of 1,020 insects a day continuously for nearly eight weeks and this by an abnormally small brood !

Under natural conditions, a brood probably consists of four to six young and I imagine the birds would be double brooded and might even produce three broods in a favourable season.

There can be no doubt, therefore, that the benefit derived from the presence of these and other small insectivorous birds in agricultural and fruit growing areas is inestimable and the strict protection afforded them by the Governments of Canada and America is more than fully justified.

* * *

NOTES ON THE CYANISTIC PHASE OF THE INDIAN RINGNECK PARRAKEET

By DAVID WEST (Montebello, California, U.S.A.)

Colour variations among normally green birds do not seem to be of a too rare occurrence. The amazing little Budgerigar occurs in dozens of colours, and other birds with large areas of green plumage which appear subject to variation are Masked and Nyasa Lovebirds and, in addition, there are Plumheads, lutino and blue phases of the Alexandrine, and lutino and blue phases of the Indian Ringneck Parrakeet.

The earliest references to this colour phase appear in the 1920's in the AVICULTURAL MAGAZINE and Hachisuka's *Variations Among Birds*. From published information it appears that at least one, and more likely two, blue examples of the Indian Ringneck Parrakeet were kept by a Mr. M. G. Mallick, of Calcutta, during the 1920's. From conversations with people who saw these birds in India it would appear that both birds were cocks, were kept in individual cages, and that no attempt was made to breed from them in order to perpetuate this colour phase.

Continuing chronologically, the next reference to blue Ringnecks is the 1941 record of the example which Mr. Sheffler raised in his Arizona aviary. This bird was reared from normal parents, and it was a great tragedy that it was killed when only a few weeks old when Mr. Sheffler tried to catch it for removal to other quarters. Although the parents of this bird were kept for twelve years they never again repeated their 1941 success. Mr. Sheffler recently told me that this bird, like those currently in England and in California, was powder-blue in colour.

After the end of World War II there is a notation in the AVICULTURAL MAGAZINE of an English soldier seeing a blue Ringneck among a flock of green ones while on duty in India. An American dealer also told me that during a 1949 trip to India he saw a tame and talking blue Ringneck which belonged to a poor Indian farmer. Although repeated attempts were made to secure the bird nothing eventuated and the dealer was forced to give up the idea of securing this bird. There is always the possibility that this bird might have been useless for breeding purposes if it were too tame.

During 1950 two blue Ringnecks were offered by an Indian dealer to a Californian fancier for the sum of \$1,000. At this time it was believed that they were the only pair in captivity anywhere in the world. As if the price were not enough of a drawback American importation regulations would have made it virtually impossible to secure the birds anyway, so rather regretfully a negative answer was sent back to India.

Although I have no valid information from the late Duke of Bedford it would appear logical that the pair of blue Ringnecks he secured from India through the efforts of Mr. A. Ezra in 1950 were this same pair offered to the Californian fancier. The Duke mentions in an article that this pair consisted of an adult male and a young female and that neither bird appeared to have been in captivity very long. One cannot help but wonder if these birds were wild caught, or is there someone in India breeding blue Ringnecks?

Certainly the pair sent to Woburn did very well for they reared a total of eleven young in three seasons. The actual numbers were as follows ; in 1950 an interest was shown in the nest but the female was too young and nothing eventuated ; in 1951 three were reared ; in 1952 four were reared ; and in 1953 another four were reared. In the 1953 season a blue cock mated to a lutino hen also reared two green youngsters.

The possible colour variations made possible by correctly mating the lutino and blue phases will certainly open a new field of endeavour for the aviculturist. An albino Ringneck is now a distinct possibility and should be a really lovely bird if it retains the red bill and the pink ring about the neck. Now that the Keston Foreign Bird Farm has

succeeded in breeding a nearly pure lutino Alexandrine (by mating a female lutino Ringneck to a cock Alexandrine and then mating the split sons back) the same method could be used to produce a blue Alexandrine and then with these lutino and blue Alexandrines an albino Alexandrine could be anticipated.

At the present time there are just thirteen blue Ringnecks in captivity. Of this number four birds are here in California, eight are in England, and one on the Continent. One can only hope that they will all continue to prosper and that soon their present "unlucky" number will be a much higher figure.

* * *

Supplementing Mr. West's notes, there are nine blue Ringnecks in this country. If his information regarding one being on "the continent" is correct there are therefore more than the "unlucky thirteen" in captivity.

When the late Duke of Bedford's collection was so lamentably dispersed, the original breeding pair passed into Mr. Boosey's care. The 1950 trio, one hen and two cocks together with the two 1953 green young bred from a blue cock and lutino hen were acquired by Mrs. Clark, of Bromsgrove, and the four remaining immature birds came to Ballinger.

It is hardly necessary to say that every effort is being made to establish this magnificent colour variation. This desirable goal will take time to achieve in view of the lengthy period taken to attain maturity and the difficulty of sexing birds in the meantime. There is also the desirability of introducing unrelated blood which of necessity must either be normal or lutino strain since there are no other blue birds available so far as is known.

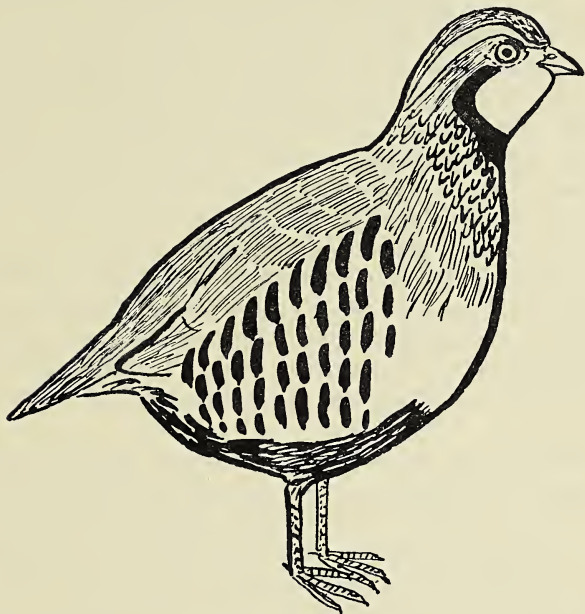
One other point is worthy of mention, namely that in 1934 our president, Mr. Ezra, successfully reared a blue Alexandrine. The parents were a blue cock mated to one of his daughters by a normal hen.

E. N. T. V.

* * *

NOTES ON CAPTIVE RED-LEGGED
PARTRIDGES

By DEREK GOODWIN (Virginia Water, Surrey, England)

*ALECTORIS RUFA*

Upper parts brown, wine-red tinge on hind-neck. White superciliary stripe. Throat white, bordered black, with laced pattern extending from black border. Breast blue-grey, belly deep golden buff. Flanks barred chestnut, black and white on blue grey ground. Bill, legs and eye-cere red, eyes brown.

Although, like most bird-watchers, I had long admired the beauty of the Red-legged Partridge, *Alectoris rufa*, it was by a pure accident that I first started keeping these birds. Wandering with a friend along an overgrown bank at a local sewage farm one morning in late July, 1952, I nearly stepped on an incubating Red-leg. As it flew off it became entangled in some weeds and struggled frantically for some seconds before it succeeded in tearing itself free. On our return at 6 p.m. we were, therefore, hardly surprised to find it had not returned. We decided to give it another 24 hours, and in the meantime I inquired frantically, but in vain, for a broody bantam, and I had to use a large black hen, the only broody obtainable. The following evening the Partridge's nest was obviously deserted. One of the eggs had been removed, and was lying—unharmd—several

yards away. I took all eight, and put them under the hen, and after four days they started to chip. Soon two had "caved in" with the weight of the hen, and all would doubtless have been crushed, but by good luck a broody Cochin bantam was procured just in time. This bantam had only begun to sit some eight hours before, but she reacted appropriately to the hatching eggs, sitting "lightly" and "talking" tenderly to the unhatched chicks. Of the eight eggs, five hatched, and the two somewhat flattened ones—from which, of course, the chicks could not extricate themselves—I successfully opened at the correct time. The eighth egg contained a dead chick. The net result was seven strong and healthy chicks, which, as the well-developed eggs had been left deserted and cold for some thirty-six hours, was rather remarkable. The newly hatched chicks were the most delightful objects, in soft buff and brown down, their rather short and sturdy legs being dull yellow, spotted with blackish, a rather unusual colour scheme. I had feared that the chicks might be as hard to rear as Common Partridges, which are said to be even more difficult than the pheasants of the *Phasianus* group. Luckily this was not the case, and the young Red-legs proved as easy to rear as Golden Pheasants.

They were kept on the lawn in a pen, which was moved daily. At first the young Partridges could slip in and out through the one-inch mesh, and two vanished at this stage, doubtless carried off by some predator. At about five weeks old the young birds had begun to find the narrow confines of the pen irksome. They were liable to panic at a sudden approach (especially if one's lower garments or footwear was at all unusual)—and spent much time running up and down the wire. They were then moved to a large aviary (about 20 feet by 40 feet) together with their foster-mother, and within a few days became exceedingly tame and unafraid. A few weeks later the bantam was taken away. The Partridges, although for some time they had appeared to have little regard for her, or she for them, were much demoralized by her disappearance, and ran about trying to get out, stopping every few minutes to give the rally call. After a couple of days, however, they appeared to have quite forgotten her.

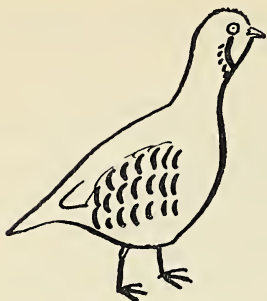
In mid-November three of the five became ill, their faces swelled up and frothy mucous ran from their eyes and nostrils. This would appear to have been similar to, and probably homologous with, the eye-disease described by Hastings (1953). At all events it seemed to have been due to lack of Vitamin A, and giving the birds halibut oil speedily cured them. The whole question of feeding I will deal with later on.

From the fact that three of the birds were noticeably bigger and heavier than the others, I rightly guessed that they were three cocks and four hens. I gave away a pair and kept the other five together

in a large aviary, intending to separate them in early spring, when I expected they would start to form pairs and to quarrel among themselves.

From February, and increasingly onwards, the Partridges showed considerable unrest. They ran restlessly up and down the wire, stopping every few minutes to give the flight-intention call, a throaty "Tschrech! Tschrech!" similar to the alarm call (for ground predator), often intensifying it to a tern-like "Tschree-ach!" as they made the preparatory movements for flying away, and often did in fact fly up on to some perch or ledge. I saw, indeed, some low intensity forms of behaviour associated commonly with pairing display, displacement-feeding, etc., but did not then recognize the import of such signs. Even by the 8th April, no pairs had formed, and there had been no fights (wild Red-legs normally pair in February or the first half of March). With Red-legged Partridge—as with many other birds—individuals that have been brought up together do not easily form pairs among themselves. This indecisive state of affairs continued until about mid-April, when I went away for four days. During my absence one of those "accidents" such as so often happen when one leaves one's birds in well-meaning but incompetent hands occurred. The aviary door was left open, and all the Partridges (and worse my old cock Jay "P") escaped, and were lost, shot in all probability, I fear.

I thought that was the end of my Partridge-keeping, but it was not. A friend on holiday in Norfolk a month later happened to mention my loss to a gamekeeper, and the latter very kindly gave him eight Red-legs' eggs as a gift for me. These were put under a borrowed bantam hen, and all hatched. Three of the chicks were lost to predators, but the others thrived, including one that was crippled at an early age owing to a heavy piece of wood falling on it. These chicks were kept for some time in the moveable pen on the lawn. Theoretically this should have been better for them, but except perhaps from a sanitary point of view it was not. At about five weeks old one or two of the chicks began to get rather wild. This wildness increased until at about seven weeks all would show some alarm, and a sudden approach or, more particularly, anything new in my appearance, would set them madly beating at the wire. In desperation I moved them to a large aviary. It then became evident that their fears had been aggravated by the lack of cover in the pen on the open lawn, and the fact of being unable to move to some distance from the alarming object. At first they ran away whenever I moved in the aviary, but soon returned to my vicinity. Within three days they were feeding freely from the hand, and only walking off a short distance when I moved, and within a week they were extremely tame, hardly bothering to get out of my way when I walked about.



Alarmed.



Brooding Chicks.



Resting.



♂ Feeding ♀.



Standing in Rain.



Giving Rally Call.

In the late autumn I received back the pair of 1950 birds which I had given away, as their owner was disposing of her game birds. This pair had always been tame, but were evidently upset by being caught up and conveyed in a box on the back of a motor-cycle. They were released together into a large aviary and showed considerable timidity. Within twenty-four hours the cock had completely retamed, but his sister remained extremely wild. For several weeks a close approach would send her crashing madly about. Indeed, in fear of her injuring herself, I released her, but she returned persistently to the garden. So I caught her up again and returned her to captivity after cutting off every other primary and a few secondaries in each wing. This does not prevent a game bird from flying, but does make it unlikely to achieve sufficient velocity to injure itself seriously when

it rises in sudden alarm. She gradually became somewhat tamer, but would never again feed from the hand, and always fled at the approach of strangers.

After a short time I introduced this pair to the other birds. These latter received them with the "Who's that?" "A stranger!" "Then chuck a brick at him!" attitude not uncommon among allegedly more rational bipeds. The timid hen Partridge, scared of the human beings present, ran wildly to the far end of the aviary, but her brother stood his ground. The original inhabitants approached in a stealthy manner, aggressiveness being obviously tempered by caution. They went into aggressive display, but the newcomer (hereafter to be called "P") was not intimidated, and he displayed back. A fight soon ensued, the two males pecking at each other's head, and trying to jump up and beat each other with their legs; when they failed in this endeavour—which they usually did—they would seize a billful of their opponent's neck feathers and tug doggedly. The three females crowded around displaying, their aggressiveness being evidently not sufficiently aroused to stimulate them to fight. During a lull in the battle the lame hen, perhaps overestimating her abilities as we all so often do, suddenly attacked the strange cock. She soon had cause to regret her temerity, for he at once counter-attacked. She was seized, thrown down, and beaten severely, and as soon as she could tear herself free she fled precipitately into the depths of a rhododendron bush with all the aggressive drive knocked out of her. Since the two males "P" and Red—so-called from his ring colour—showed no signs of ceasing hostilities, and had begun to show signs of exhaustion, I separated them and shut the former in a small wire pen inside the aviary, thinking that within a day or two they would have got reconciled to each other's presence. This plan was successful, although a day's close confinement had an almost too-depressing effect on the male "P", who on release showed very mild and timorous behaviour for some time.

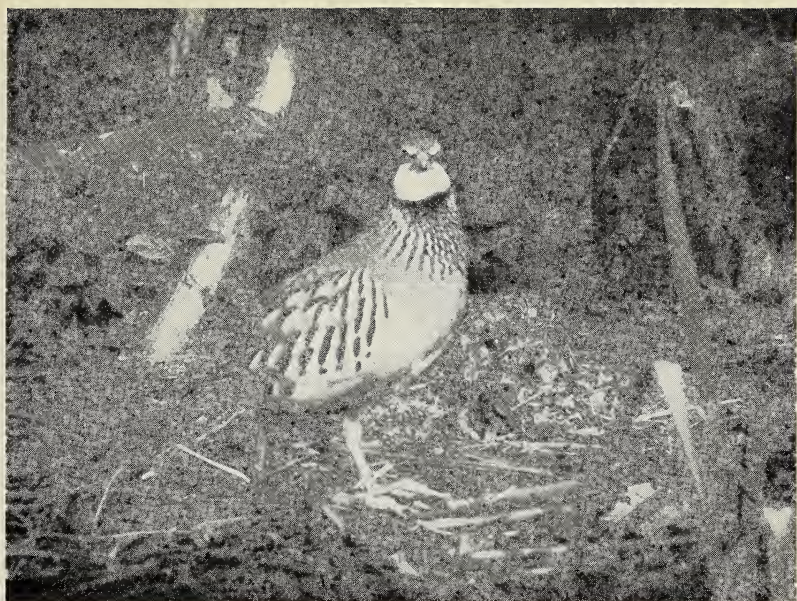
Nothing very interesting happened, or rather was observed, for some time, except that one night some unknown predator dug in under the wire and took one of the Partridges, fortunately a hen. At some trouble and expense wire netting was sunk all round the aviaries to forestall any repetition of such feats. In late winter, and increasingly as the days got lighter, the Red-legs showed the same unrest as their predecessors had done, and likewise gave no signs of pairing. I noticed that if the male Red started to display, as he often did when approaching other birds after having been at a distance, "P" would tend to walk up to him, and sometimes go right up to him and "false-feed" at his feet. This I suspect was behaviour of an appeasing or submissive nature, as false-feeding (of which I shall have more to say later) appears to be essentially a peaceable gesture. I did not then

know the submissive posture, so cannot be sure if "P" showed it at low intensity on these occasions, but I think it probable that he did.

As by late March no pairing appeared to have taken place, I decided to try to expedite things. I left Red and one of his sisters—who was the tamest of all the females—in the original aviary, and moved "P" and his mate of the previous year (who it will be recalled was his sister) to another aviary a few yards away, and put the lame hen in with them. "P," within a few minutes of finding himself separated from Red, regained all his original self-confidence, and gave vocal expression to his altered feelings. Red was not slow in answering his challenges, and for some considerable time thereafter much of each day was enlivened by the two male Partridges singing against each other. The song of the Red-legged Partridge, although not lacking in vigour or persistence, is calculated rather to intimidate the conspecific rival than to charm the human listener.

After about a week it became quite clear that the male "P" and the crippled hen had paired. The two birds in the other aviary were, however, merely carrying on a wholesome platonic friendship, and had no deeper interest in each other, whilst the timid hen ran unceasingly up and down the wire opposite as if she wished to return to their aviary. Since it seemed unlikely that Red and his sister would pair, I put the timid hen in their aviary, and watched events. She at first fled, terrified at having been handled, but in a few seconds she came out of cover and made a "dead set" at the male. Within five minutes they had displayed mutually to each other, copulated, and prospected a possible nest-site. Her matrimonial ambitions and status thus having been consolidated the timid hen turned her attention to her sister-in-law, attacking her with that irresistible, self-righteous fury that Partridges—like some other bipeds—are apt to show when they suppose their sexual interests threatened. The victim showed no resistance, but only extreme fear—in my experience the usual, though not invariable, reaction of a female Red-leg to actual physical aggression—fleeing wildly about the aviary, and when cornered submitting without resistance to the other's attacks. Needless to say I soon rescued her, feeling a wholly unreasonable aversion for the timid hen because of her very human-like behaviour in continuing to ill-treat an unresisting enemy. The rescued bird was placed in the other aviary. Here the crippled hen, as "lawful wife" of the male, received her in a similar spirit, but owing to her physical disability, was unable to translate her feelings into effective action. After a few days she began to tolerate her rival, and soon they settled down to a "ménage à trois" with at least no overt signs of hostility. It seems tolerably certain that such a trio could never form or hold together in a wild state.

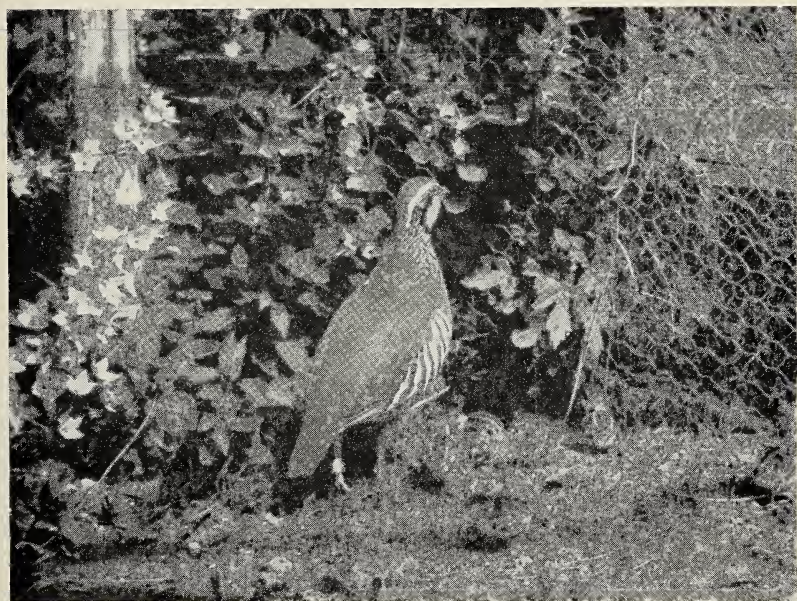
The hen of the pair by themselves soon started to lay. The cock



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[D. Goodwin

MALE RED-LEGGED PARTRIDGE (RED RING) IN (PARTIAL) DISPLAY.



Copyright]

[D. Goodwin

MALE RED-LEGGED PARTRIDGE (RED RING) WITH CHICKS FIVE
DAYS OLD.

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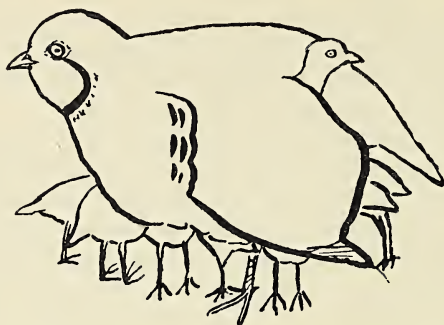
had already made two nests, one under some brushwood in a corner, and one under the edge of a rhododendron bush. The first egg was deposited in the latter, but to my surprise no more appeared in the next few days. I could see no other nest from a casual inspection, but when some ten days or so later I made a thorough search, I found a nest with eight eggs well hidden on the ground in the middle of the small rhododendron bush. Doubtless the first nest had been deserted owing to my paying too much attention to it.

When this nest contained nineteen eggs—which were laid at the rate of about four per week, but I regret I kept no exact count—the cock scraped out a fresh nest in a far corner under some conifer branches. The hen then continued laying in this second nest until eighteen eggs had been deposited in it. I began to fear that the birds did not intend to sit, but a few mornings after laying her last egg, I found the hen on the second nest. That day the cock bird showed a remarkable progressive change in behaviour, becoming hourly more silent and self-effacing. His air of aggressive masculinity changed in twelve hours to one of cowed and conscience-stricken femininity. Next day he commenced to incubate on the first nest.

That night there was heavy rain, and both Partridges came off the nest at dawn, and three hours later showed no signs of returning. I feared they had deserted, but about 11 a.m. both went back on their respective nests. At first they came off each morning and evening for some ten to twenty minutes or more, but as incubation progressed the off-duty spells became shorter, and the evening one dropped out. For the last four days I saw neither bird off the nest at all, and am fairly certain they did not come off. I had left them each about a dozen eggs, but some did not hatch, and were found on examination to have small "hair-cracks" in them. Possibly the Lanceolated Jays in the same aviary had pecked inquisitively at them, though they had not actually broken any. When the first of the twenty chicks that did hatch poked its head from under the mother, the lame hen Jay at once hopped up, seized and flew away with it. The Partridge did not seem to grasp the significance of this incident, and showed no signs of resentment. I was in a quandary since the Jays were then (mid July) in full moult, and the last thing I wished to do was to handle them. With acumen rare to me, I thought of the solution, cut a large hole in the side of the aviary and another in that of one near by, connected the two with a wire funnel, and easily drove the Jays into exile.

When the young Partridges were led from the nest it became abundantly clear that their parents had no interest in each other, but were solely concerned with the young. They did not quarrel, but the male would give his note of protest if the female came near when he was brooding. Owing to the chicks not distinguishing father

from mother, the broods were often unequally divided, and one saw the ludicrous spectacle of one parent uncomfortably brooding sixteen or seventeen, whilst the other had only one or two chicks beneath it.



Adult Brooding Month-old Chicks.

As with other game birds, the parent Red-leg reacts violently to the sound of a chick in distress or to the sight of some innately recognized enemy, but it is a case of "out of sound, out of mind". So long as there are no overt reminders of the rest of the family, it is quite "happy" with even a single chick. Stupid though this behaviour may seem to the minds of animals capable of conceiving the Atomic Bomb and the Inquisition, it is, nevertheless, obviously adaptive. When irrevocable disaster has overtaken the majority of the brood it is clearly of great biological advantage that the parent should be able to concern itself wholeheartedly with the welfare of the survivors, instead of vainly fretting over the dead which no power on earth can bring to life again.

After the first week the chicks' mobility increased; they were constantly roaming the whole aviary, and had learnt that my appearance meant food. Their timid mother usually ran to the far end of the aviary, especially if any stranger appeared, and tried to call the chicks away. They, however, soon learned to ignore her under these circumstances, and would come running up to me with their father, who was perfectly tame.

More surprising than the chicks failing to be influenced by their mother's wildness was her lack of response to their tameness. Two of the chicks died when three weeks old, but the remaining seventeen were reared. Despite the fact that she was now in company of eighteen other Red-legs, all of whom were extremely tame, the old hen still remained wild. It is often thought that birds are greatly influenced by the behaviour of their companions, but in my experience this is usually only so if they have no "preconceived ideas" on the object evoking their companion's behaviour. A bird that is afraid of a person

seldom shows any less fear because a fellow-captive greets his appearance with eagerness. Nor, on the other hand, does a tame bird often become wild if associated with a timid comrade.

When moulted out into their adult plumage the seventeen young Partridges made a delightful picture. They were very tame, and some of them would even perch on my arms and shoulders to be fed. The food bill was, however, considerable, and I had not sufficient space, so I reluctantly decided to part with the majority. I thought that the best chance of their getting to good homes was to give them away. In this I may have been wrong, as many people value more something they have paid a high price for than something that has cost little or nothing. Accordingly, I put a note to the effect that I had some Red-legs to spare in our Magazine. The result was overwhelming, and I was not able to reply to all the letters I received, though I read them all more than once. Finally, the spare birds were all sent off to their new homes with sundry members of the Avicultural Society. One of the latter neither acknowledged receipt of the birds nor—in spite of repeated requests—did he ever return my travelling-cage to me. The four other members sent me nice letters of thanks, and promised to let me know how the birds fared. None of them did so and when, a year later, I made inquiries I learned that in two cases the birds had been killed by stoats or foxes. The other two did not bother to reply at all to my letters, so I rather fear their Partridges had also come to grief by some accident, or else been sold or eaten!

The “trio” of Red-legs in the other aviary laid three nests of eggs. Both hens laid in the same nest. The impulse to lay in a nest already containing an egg or eggs, rather than an empty one, is very strong in game birds, and has of course long been utilized by keepers of domestic fowls to induce their birds to lay in nest-boxes where the eggs can be gathered. In a wild state this impulse is biologically useful, since it ensures that the bird will lay her later eggs in the same place as the first and not in one of the innumerable other sites that are in other respects “just as good”. Like many other innate impulses—and not only those of the class Aves, this one can prove harmful where man has altered the natural state of things. If the gravid female game bird finds a nest already containing eggs, she will lay in it rather than make one for herself elsewhere. This happens very rarely where wild game birds are at a normal density, but often in areas where game-preservation holds sway. Everyone knows how common an occurrence are nests containing the eggs of two or more females—often of different species—in English game preserves. In the case of the captive Red-legs the fact that the male usually takes the initiative in selecting the nest site also probably affected the issue, since the male scratches out another nest, to which he calls the female when the first is full of eggs.

In this aviary only one female (the sound one) incubated, on the last of the three nests. Unfortunately, she became ill and died quite suddenly after sitting for twelve days. Neither the male nor the crippled female went broody. I thought at the time the male's failure to do so was because the female was still with him, but later observations changed my opinion. I now suspect that his failure to incubate (which he has shown also in 1953) is due to the fact that incubation in the male is accompanied by a psychological change to a furtive and non-aggressive mood. This would presumably be more "difficult" for an individual whose aggressive drive is extremely strong, as is the case with this male. Of course it is probable that some factors of captive life may also tend to inhibit incubation.

Having given away my surplus Partridges, I still retained six birds, thinking this an ample number for future study in view of my restricted time, space, and money. Unfortunately various disasters happened, culminating in an infestation of gapes that wiped out in 1953 all the remaining birds, except the two old males and two juveniles, one of which latter subsequently escaped and was lost. I am now left with three males, and all efforts to purchase some tame females have proved unavailing.

Some notes on the care of these birds may prove of interest.

Food.

I have found that Red-legs do well on a diet of grain (wheat and/or millet), with a little bread and milk (to which bemax and glucodin are added) about twice a week. This can be varied with dry whole-meal bread, and a few peanuts or small bits of cheese given by hand frequently, will help to keep the birds tame. Plenty of fresh green food is important. No matter how well fed otherwise Partridges like to eat quantities of green food. Cabbages and lettuces, especially such as have run to seed, brussels sprouts, etc., are all acceptable, but particularly fresh turves of grass and clover. From a turf they can pluck the grass-blades, clover leaves, seeding weed-heads, and so forth, in a natural manner, but such things as lettuces must be firmly tied or fixed between two bricks so the birds can peck at them. When breeding the hens especially often relish beetles, mealworms, and other insects, though in general they care little for them once adult. Probably if the diet were otherwise poor in protein they would eat them at all times. In the domestic fowl and Golden Pheasant the inclination to eat earthworms—which is usually only shown by growing young and laying females—can be stimulated by putting them on a low-protein diet. If the floor of the aviary is covered in parts to a depth of several inches with leaf-mould or similar litter, and millet thrown into this, the birds will take a lot of exercise scratching for the seed.

I expect any regime on which young pheasants are successfully

reared would suit young Red-legs. If mine are being reared by a bantam, I place them on the lawn in a pen, which is moved daily. If they can be obtained, I feed largely on the cocoons and grubs of the small ants (one reddish and one black) whose earth-heap nests are common in fields and roadside grass strips. The chicks also eat the winged male and queen ants, and sometimes—with less avidity—the workers also. In addition to this I give milk-sop to which a little bemax and glucodin has been added, a few mealworms or mealworm pupæ, and any other small insects that come to hand. After a week or two I add a little seed to the diet, and gradually get them on to the same diet as the adults. Growing young may be given the cocoons of the large wood-ant, but I do not like these for baby chicks as the fiercely fighting worker ants might do them some harm in the early stages.

At first the chicks are ravenously fond of mealworms, but in every brood I have reared they have “lost the taste” for them between four and six weeks of age, although still continuing to eat ant cocoons, cheese, broken peanuts, and other rich but non-motile food. When the Partridge chicks are reared by their own parents the same regime will suffice. So long as they are getting plenty of ant pupæ and green food, they take no harm from eating a certain amount of grain from an early age. Grit, clean water, and dust-bathing facilities must, of course, be provided for both young and old.

Diseases.

My first brood of Red-legs developed swollen faces, with running eyes and noses, in late November. This would appear to have been a form of Xerthalmia, or something akin to it (Hastings, 1953). The birds were quickly cured by giving each a few peanuts slightly coated with halibut liver oil daily until they improved. Since then I have given my Partridges a feed of grain treated with halibut oil, about once a week from October to May and have had no further trouble.

Gape-worm infestation, as I have narrated, wiped out most of my Partridges in 1953. The adding of T.C.P., permanganate of potash, and so forth to the drinking water has, in my experience, proved futile. Mechanical removal of gapeworms although often successful with Jays, proved no use with the Partridges. I have since found Barintar—a powder manufactured and sold by I.C.I.—effective in curing afflicted Jays, and hope that it will prove equally so for Partridges if mine are so unlucky as to be again attacked with this scourge. I may say that I found Aniodol Interne had no apparent adverse effect on gapeworms in Jays and Partridges. This is strange when so many members appear to have found it a certain cure for gapeworms in Starlings. Gapeworms are said to be often picked up through eating insects or worms that contain their eggs. This seems

likely to have been the case with my Partridges where the two laying females, and most of the young were infected, but not the two non-insectivorous adult males. Where young Partridges are reared by their own parents in aviaries, where the ground and its insect life are likely to be infected with gape-worm eggs, it is probable that the method suggested by Wilford Smith (1947) would prove a remedy. This consisted of thickly covering the floor of the aviary with dead bracken, so that the chicks did not come into contact with the earth.

Pros and Cons.

As aviary birds Red-legs can be recommended for their beauty, tameness (in most cases), and the ease with which they can be kept and bred. They are not, however, suitable for small aviaries. On the regime often accorded to gallinaceous birds in public aviaries (whose proprietors are sometimes, I suspect, in league with anti-bird-keeping circles) of corn *ad lib* and a lump of stale cabbage once a week, they most certainly will soon cease to be of any beauty or interest.

Their faults are those common to most largish ground birds. They foul the ground considerably (removing the droppings from and/or liming the roosting places will help to obviate this), and may cause considerable disturbance if they panic at night. Although not usually aggressive to weaker birds, they may be so at times, birds with young, and males in breeding condition whose aggressive drive is very strong, being the most likely offenders in this respect.

Voice and Display.

I shall only briefly mention these, as I have dealt rather fully with them in a recent paper (Goodwin, 1953) elsewhere, to which readers are referred. Einbeck (1834) also mentions this subject, and gives many interesting details about his captive specimens.

The most familiar note is the "rally call"—the loud, rather harsh "Chuk, chuk, chukuk, chukar!" This is used to indicate the bird's whereabouts to its young, mate, or companions when, for any reason, it has become separated from them. In spring the male utters a loud harsh rhythmical "song" which suggests a laboured steam-engine. At a little distance it is hard to believe that a bird, and not a locomotive, is responsible. These two calls are loud and far carrying, but the bird also utters a great many other notes, most of which are rather quiet, and hence not often known to sportsmen and others who are only familiar with the species at gun-shot range or further.

The commonest display is one in which the bird draws back its uplifted head at the same time "twisting round" the face and neck markings in a peculiar manner, so that they are displayed almost fully to one side. The barred flank feathers come up high over the wing on the "displaying side". The other wing is often drooped, so that

the primaries drag the ground. This display is primarily threatening, but it is shown between male and female—interspersed with food-calling and other appeasing gestures—during pair-formation. When feeling “inferior” and wishing to avoid fighting, a bird usually responds to any signs of aggressiveness by walking in a somewhat crouching “guilty-looking” posture. At a higher intensity of this feeling it will raise one or both wings above the line of the back, and at the same time spread out the primaries. In this movement the yellow-buff on the outer ends of the primaries and some of the secondaries become much more conspicuous than when the wing is folded normally.

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FRIENDSHIP AND ENMITY BETWEEN BIRDS

By A. A. CLARENCE (Nunton, Nr. Salisbury, Wilts, England)

I have long been impressed by the loneliness of single birds and the friendships that ensue. Also by the cruelty of birds to their kind.

Among them the Orange-headed Ground Thrush is a good example. He seems to reserve his spleen for the hens of his own race. For the last three years I have had a pair of these birds in a 40-foot aviary. On Christmas Day the cock slew his hen with evident pleasure, and left her corpse without feather on head, neck, and back.

I arrived on the scene just after he had committed the murder, and found him perched above preening his feathers, and obviously saying “well, good-bye to all that”. Possibly the reason for his action was that for two seasons he had carefully built perfect nests which had been ignored by the hen. Last spring he built two, one of them in a circular tin about 8 inches in diameter and 2 inches high. This tin was used for seed and is fixed to the top of a 4-foot drainpipe with a hood over it against rain.

After some weeks of waiting, a Brown-eared Bulbul decided that it was her’s for the taking and took possession. She laid three eggs of a beautiful mottled strawberry tint, which were inspected daily by the Orange-head. He would stand on the edge of the tin, and look at the

little hen with his head cocked on one side with an expression of astonishment which clearly indicated "well I'm hanged!". She would look back at him and chatter in a most friendly way.

After nearly three weeks she gave up trying to hatch infertile eggs, to my disappointment and that of her spouse. A Red-vented Bulbul immediately took over the nest and added one solitary egg to the clutch. The Orange-head took no interest whatever in her or her doings, even when, in due course, the chick was hatched.

For no particular reason this baby was called "Georgie" and now George or Georgina whichever sex it is, is flying strong and full grown with its parents, and three other brothers and sisters of the previous year's hatch. The year before that the old pair had two young ones, both of which they killed, as soon as they were full grown, which all goes to show how sweet they are.

With regard to curious friendships, a pair of Canary-winged Parrakeets also inhabit this aviary. In the spring I introduced a Golden-crowned Conure cock. Immediately the hen Canary-wing left her husband, and became the inseparable companion of the Conure, who likewise is devoted to her. The Canary-wing is very tame and flies to my shoulder as soon as I enter the aviary. The Conure eventually overcame his fear and now sits on the other shoulder, but is off at the smallest sign of intimacy on my part. I have to keep an eye on him, as he would like to bite my ear hard, and has done so once or twice. No doubt he thinks he is getting his own back for past grievances.

Unexpected things happen in aviculture, as we all know. The most interesting in my experience happened last summer and concerned a pair of Cockatiels. These birds had a second nest. The eggs were about to hatch when the hen became ill and died. In the aviary with the parents were four young Cockatiels from the first nest, which they had left about six weeks before.

I was lamenting the loss of the hen, and had just removed her warm corpse from the corner into which she had fallen, when to my astonishment one of her daughters, showing concern, flew to the nest and inspected the contents. She did this several times and within half an hour was in the box sitting on the four eggs, all of which she hatched in the next few days and brought up successfully.

Although I watched carefully, I could never decide if any of the other children helped to feed their younger brothers and sisters. I think not, judging by their bibs, which were always clean whereas the little foster-mother became wet-bibbed and bedraggled.

NOTES ON A SMALL COLLECTION

By FRANCES E. MATTHEWS (Cranleigh, Surrey, England)

I have been asked to give a few particulars about my foreign birds. Some years ago they were housed in aviaries, and then there was much more of interest to tell about them. Owing to the changeable seasons, the birds now in great request are the species which can stand up to all rapid changes of temperature. The birds I have now are all indoors in a large room. This gets all the sun and the windows can open without draught.

I have Violet-ears, Red-headed Gouldians, Cordon Bleus, and Zebra Finches—all in large cages.

The pair of Violet-ears have been very busy making their nest. They are very tame. The nest is made from plaited rushes. It is cone-like in shape and now it is filled with grass. I find these birds very attractive. They never quarrel ! Both birds can sing before it is daylight ! The cock's note is like that of the Reed Warbler. The hen in her nest joins in " to cheer him up " !

Presently the cock calls her out for their morning drill. This consists of a very graceful type of flying—in which each bird takes part—each bird rising and bending as they fly across the cage. But they time it so that they never touch. I think this exercise is unique and interesting.

The Gouldians, two pairs, are not as energetic as the Violet-ears. One pair inhabits an indoor aviary, on the lines of the one illustrated in Mr. D. H. Risdon's book, which I think is very good. The birds enjoy ample space and sunshine. They have a good box nest which they are preparing. In the same enclosure are a small pair of Cordon Bleus in a rush nest at the other end. The four birds get on well, though the Cordons are not allowed to know which nest they may be allowed to occupy !

Last year, in another place, the Cordon hen laid two eggs but they were not hatched as the birds were disturbed. The second pair of Gouldians, though they have filled their large nest-box with grass, don't seem anxious to nest. Two pairs of Zebra Finches, in separate cages, spend their time talking and making a lot of noise, filling their nest with grass and removing it. It delights them to make a noise. They can do this when they make a root of grass really hard and then drop it. If the hen lays eggs she disregards them. The cock thinks otherwise.

Now I must tell you about Julie, our African Grey Parrot. She lives by herself, and is very strong and not afraid of cold. Her voice can be heard very early, when she hears my daughter moving about. Polly lets her know she is alive. She is told she is " making too much noise and must wait ". Her loneliness must find expression, however, and her want to be uncovered is attended to. The seed first, then the bread

and butter, with marmalade, arrive and Julie's remark is "Whoo!". She knows my step and connects it with one or two grapes.

My daughter speaks to me in my room (Polly's hearing is very good) so she joins in the conversation, and says "Yes mother"!

She does not talk when she comes to my room and climbs up on my knee to be stroked, but it is difficult to persuade her to go back to her cage. I think one of her best remarks was when told that "The gardener might be late coming to clean her cage". Julie said, "What a shame!".

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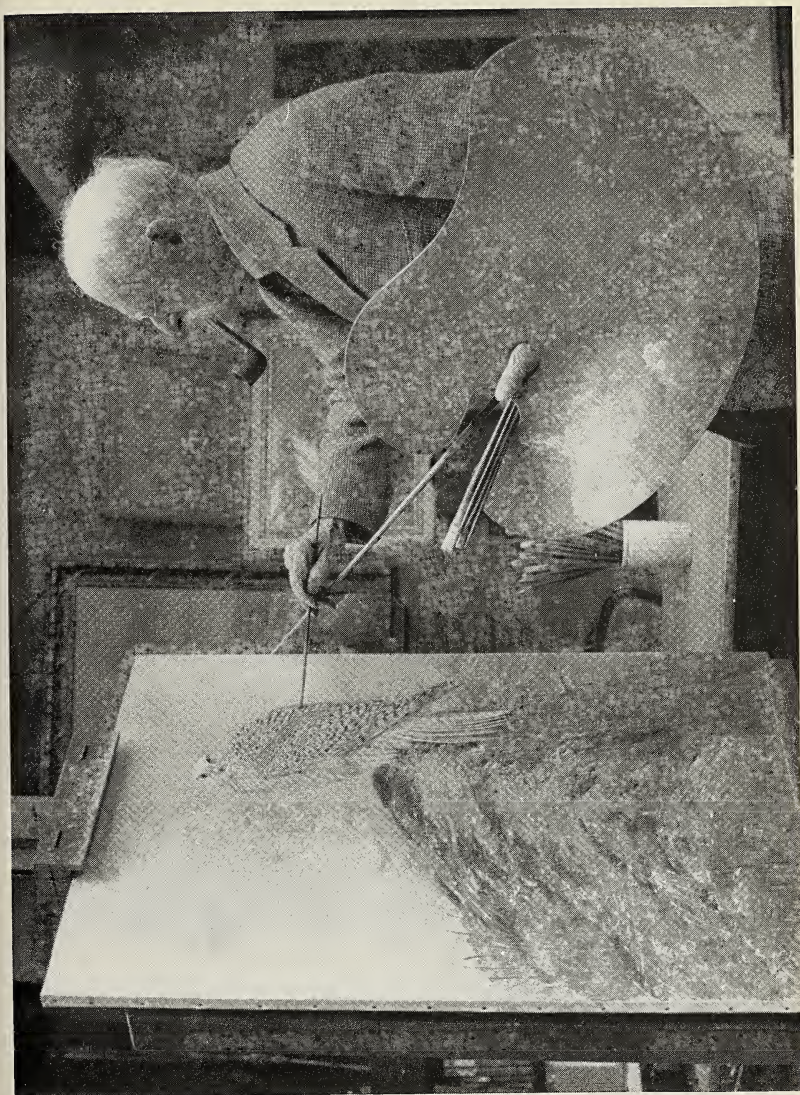
OBITUARY

G. E. LODGE

By the death, at the ripe age of 93, of George Edward Lodge, the world has lost one of the greatest bird artists of all times, for his paintings of birds and of their natural surroundings were not excelled by any.

Lodge was perhaps primarily interested in the birds of prey, of which he was an authority, and his pictures of these are amongst his best known. He had, in his younger days, done a great deal of falconry and the falcons were his great favourites, though the game birds ran them closely. He dearly loved the Highlands, and his pictures of grouse and ptarmigan, with perhaps a falcon attacking them, are amongst his finest works. When he took a holiday it was generally to visit his Scottish friends who were always glad to have him in their shooting or stalking parties, for he was an excellent shot. But his travels were not confined to the British Isles; he had visited the United States, West Indies and Scandinavia in his studies of birds and beasts.

As well as being an artist, Lodge was a very keen naturalist, and it was always a delight to talk with him on birds and other British creatures, for he knew them all and had studied their minutest habits. I have known him well for the past half century, our first meetings being at the Ornithologists' Club, when those early meetings were held in Frascati's Restaurant in Oxford Street. I have talked with him and admired his work in his studio in South Kensington, where a lot of his pictures were made, and later when he had retired to Camberley. Well do I remember (it must be close on fifty years ago) when the Zoo had acquired a fine Lesser Bird of Paradise which was housed in the old Insect House on the north bank of the canal. Few had, up to that time, seen the full display of this species, but we heard that this bird was beginning to show off in the early mornings. Ogilvie-Grant, of the British Museum, was anxious that Lodge should make sketches of the display, so Grant, Lodge, and myself arranged to meet



[Illustrated]

G. E. LODGE

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there at eight o'clock on a given morning. It was a bright morning, perhaps too bright for the bird's liking, for he refused to display, though Lodge was able to obtain sketches of various attitudes.

Lodge's pictures have been reproduced in most of the best ornithological books of the last half century or more, and they are particularly pleasing as being both excellent drawings of the birds themselves and beautiful pictures of their surroundings, whether woodlands, lakes, or mountains. His latest work, only completed shortly before his death, has been the illustration of David Bannerman's *Birds of the British Isles*, a colossal undertaking for which he painted no less than 435 species comprised in 377 plates. These depict not only the well-known species, but the occasional immigrants that have obtained a place on the British List. He only wrote one book himself, *Memoirs of an Artist Naturalist*, an excellent book containing a number of his pictures, both in colour and monochrome, though the reproduction in some cases is not quite up to the mark.

When I saw him last in his house in Camberley he had grown a beard which well suited his handsome face. He had practically lost the sight of one eye, but could still paint as well as ever, though he told me that it took him much longer than formerly, and to put in a bird's eye which formerly took but a few minutes, now took the best part of half an hour.

His house was quite a museum as well as a gallery of pictures, wings, tails, and skeletons of birds to show the arrangement of the feathers, the joints, and so on, for as he said, the bird artist has to know precisely how every feather lies and the exact position of every joint. He was also a skilled taxidermist.

George Lodge was a younger son of Canon Samuel Lodge, Rector of Scrivelsby, in Lincolnshire, and cousin of the late Sir Oliver Lodge. He never married, his sister keeping house for him until a few years ago, when she died. Archibald Thorburn, that other great bird artist, who died several years ago, was one of Lodge's great friends. Now both are gone, the last of the Old School of Bird Painters. Will the younger generation produce any quite so good?

D. S-S.

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BREEDING OF THE CAPE ROBIN

By J. M. SPENCE (Cape Town, S. Africa)

On 9th February I was given a Cape Robin (*Caffrornis caffra caffra*). I have had them many times before, but had never succeeded in keeping them very long as we are unable to get prepared food for softbills, and no one could tell me much about them. To cut a long story short I tried him on egg and biscuit (one mashed egg to two biscuits) ; it worked and he thrived on it and gradually I enlarged his diet (boiled potato, fish meal, bread and milk, grated carrot and cheese). The general colour of the bird is dark grey with a rusty-coloured breast and tail and it has a white eye-strip. The most attractive thing about these birds is that they are forever flicking their tails, to show the two dark feathers in the middle. They are mainly terrestrial in habits although they spend much of their time in low bushes searching for insects.

On 21st February I turned my bird into one of my aviaries, 18 feet by 11 feet by 8 feet high, containing about sixty other birds of various kinds, including some Sunbirds.

I obtained a hen on 22nd February. She was meated-off in the birdroom for a week and then turned into the aviary with the cock. This pair got along quite agreeably as long as the hen kept a respectful distance, but at times he would chase her round quite unmercifully. I have, incidentally, had cocks which would tolerate neither cocks nor hens and if the bird was not removed in time a particularly horrible death was liable to follow.

I got another pair on 12th April and turned them into a smaller aviary, 10 feet by 6 feet by 8 feet high. This pair as it happened got on very well together. They were housed with a pair of Cape Bulbuls and three Bokmakieries (*Telophorus zeylonus zeylonus*). There was no trouble and all went well until the 22nd April when one of the hens died quite suddenly, but I was given another on 19th May.

As the summer got closer the cocks started to show signs of wanting to mate, and on 13th August the cock in the big aviary suddenly grabbed the hen and before anything could be done she was dead with a broken neck.

On 29th September the cock in the smaller aviary was noticed to be having trouble with his eyes. He was caught up and treated with bicarbonate of soda solution and Vaseline E.T.C., but of no avail ; he died on 5th October.

I then introduced the remaining cock to the hen and on 26th October I suspected them to be nesting, as I could only see one of them at a time, so they were left severely alone.

After a few days I noticed that the bread and milk was disappearing

faster than usual. They had the same diet previously described, and no live food whatsoever because I was afraid a sudden change of diet might affect them adversely.

On Thursday, 12th November, I saw a youngster running amongst the long grass in the aviary, and on the 13th I found it dead near the door.

Then on Sunday the 15th when I opened the door to feed the birds there on a perch straight in front of me was a second youngster, this time very far advanced, in fact so much so that before I knew what had happened it flew past me into the garden. I managed to catch it again and it was returned to its aviary within an hour. On the Monday evening I had to remove the cock because he was constantly chasing the youngster round and round the aviary.

The youngster was somewhat smaller than its parents, and the body was grey-brown, streaked with black. The tail was the exact copy of its parents except that it was shorter.

On 27th November the hen had sore eyes, so I put her into the birdroom and tried to cure her eyes but of no avail; she died on 13th December. Incidentally, this eye disease is a queer thing, the lids of the eye go hard with some secretion from the eyeball. It looks very much like pus from a festered sore, so that when the eye is closed the bird is unable to open it and also when opened it is unable to close it. When, and if, you are able to stop the secretion of the fluid by constantly washing with bicarbonate of soda and boracic solution then the feathers round the eyes and beak start to come away, until finally the eyes start watering again and the bird just wastes away. I have been unable to cure this disease and would be glad to hear if any fellow members have come across the same thing, or could recommend some cure, or better still some preventive. At the time of writing I am battling to save the two remaining Robins from the same horrible and slow death. I have managed to stop the eyes secreting the liquid by using a powerful solution of boracic acid powder.

I am sorry that I am unable to give more detail as to the colour, size, and shape of the eggs, period of incubation, growth and feeding of the offspring but as I say I was loth to interfere with their nesting activities in any way in case they deserted the nest.

The only thing I was able to get any information on was the nest: it was (internal measurements) three inches in diameter and one and a half to two inches deep, and constructed of rootlets, coir, feathers, and hair in the form of a cup. The nest was well placed as far as protection from the weather was concerned because it was placed under a tuft of long grass which in turn was under a *Pittosporum* tree about four feet high.

As far as I can deduce from studying their nesting habits in the wild

the incubation period is from twelve to fourteen days, and the youngsters are flying at 15 to 18 days from the date of hatching.

Additional Note.—Since I wrote this article the cock Robin has also died which leaves me with the youngster.

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MR. RUDKIN, SR., CARRIES ON AT 92 !

By CARL NAETHER (Sherman Oaks, Calif., U.S.A.)

One of California's ablest and most successful aviculturists, Francis H. Rudkin, Sr., is to-day making active plans for the 1954 breeding season. Though 92 years old, this indefatigable birdlover is remodelling some of his aviaries at his cosy citrus ranch in Fillmore, California, for more convenient and effective birdkeeping.

Almost ever since the year 1912, when the Rudkin family forsook their homeland, England, to build a new home and a new life among strange surroundings and people in California, birds of various kinds have been in the minds and hearts of both Mr. and Mrs. Rudkin, Sr. Their special attention for years has been devoted to the breeding of parrot-like birds, in which phase of aviculture they have been eminently successful.

Since the passing of his wife, Mr. Rudkin, Sr. has carried on his great hobby with double devotion. Perhaps the most fruitful results of his labours in the field of aviculture are not the raising of many and often rare parrot-like birds in the numerous aviaries he keeps going year in and year out, but the encouragement, the inspiration, and the helpful advice he has been giving all these many years to the visitors who almost daily throng his home-place to view his birds and to catch some of this great man's enthusiasm for his feathered friends. Unquestionably, Francis H. Rudkin, Sr., has the satisfaction of having been responsible for starting many men and women on the long road to successful birdkeeping. Always genial, always eager to help solve a bird problem, he has given unstintingly of his time and effort every day in the year, including Sunday, to furthering the most constructive and wholesome interests of aviculture. Not only grown-ups have thus benefited from association with this eminent bird fancier, but youngsters of all ages, brought by their elders or teachers in small and large groups to view the Rudkin bird collection, have been thrilled by the colourful display of so many and so varied species of parrots, cockatoos, cockatiels, parrakeets, lovebirds, and other showy feathered creatures. And all of them, youngsters as well as grown-ups, have taken away with them not only the memory of beautiful birds, happy in their spacious surroundings, but of a man's loyal devotion to their everyday welfare and their happiness. Though Francis H. Rudkin, Sr., keeps hundreds of birds, as he takes his visitors

from aviary to aviary, he spiritedly relates stories of what this bird or that bird has done, or has not done, thus keeping his visitors on the alert during every joyous moment of their visit. If he had made written note of the innumerable questions he has been asked about the care and breeding of parrotlike birds—and has valiantly endeavoured to answer fully and satisfactorily—they would indeed fill a very sizeable volume.

This modest tribute to a great and venerable aviculturist is written in the hope that it will in some measure inspire other birdlovers to follow his fine example. It is one thing to keep birds for one's very own pleasure and self-satisfaction ; it is quite another thing to ride one's hobby successfully and at the same time share its successes and its joys with like-minded men and women, not only in one's immediate neighbourhood, not only in one's state or even country, but even abroad—as Mr. Rudkin has demonstrated for so many years to so many people.

In closing, I am confident that the members of the Avicultural Societies of England and of America will join me in wishing Francis H. Rudkin, Sr., many more years of continued personal well-being, and of continued enjoyment of his beloved birds.

* * *

A NEW BUILDING FOR BIRD AND PLANT EXHIBITION

By ROLAND W. HAWKINS (Pittsburgh, Penn., U.S.A.)

Down through the ages mankind has derived endless hours of pleasure from keeping birds as pets. Some species are valued for their songs or ability to mimic the human voice, and others for their beautiful plumage. To-day there are many bird fanciers whose entire enthusiasm and interest in birds is directed towards breeding certain species to obtain purer strains and specific colour patterns. The methods of keeping birds has unfortunately shown little imagination and the conventional types of cages constructed of wood or metal having either screen, wire, or glass sides does little to promote the happiness of its inmates. Of all the animal kingdom, birds, due to their powers of flight, are perhaps the most freedom-loving creatures on the face of the earth. To capture and confine them within the cages as we know them to-day produces results that are all too apparent in the birds' condition. Certain species that have been domesticated by man, such as the canary, thrive and appear perfectly happy within the confines of a small cage. A great many of the larger public and private aviaries where collections of local and foreign birds are housed, consist of row after row of cages containing nothing more than perches, food,

and water vessels. Regardless of how well the birds are cared for, they cannot reflect happiness in such an environment, for it is nothing more than a jail bearing with it a sentence for life-time solitary confinement. In recent years there has been a decided trend towards larger flight cages containing running water and some plant life. This is a highly commendable improvement as the birds have more area to exercise and do not feel so badly shut in.

In keeping with the progressive march of the City of Pittsburgh is the new Conservatory-Aviary located in West Park on the city's North Side. Here is a success story of a building unique in design and principle, where the method of exhibiting birds in captivity has entered upon a new era that makes the old-fashioned cage methods seem completely antiquated.

In two large glass-domed conservatory rooms constructed of steel and aluminium, tropical birds and plants thrive in complete harmony. Without the intervention of physical barriers of screen, wire, or glass, visitors are permitted to walk in the rooms with the birds and plants, to see and study them in a natural environment. The many species of lush tropical plants, including bamboo, rubber trees, avocado, papaya, coffee, mango, and various palms, etc., along with a myriad of interesting smaller plants sets the stage for the many species of tropical birds selected for their beauty, character, and song. A running stream, complete with cascading waterfalls and pools, adds natural beauty as well as providing a home for numerous species of fish, aquatic freshwater animals and water plants. It does not require an experienced eye to see that the birds are completely happy in this environment, a condition easy to judge through their actions and appearance. Sleek in their full plumage they are active bright-eyed birds reflecting their boundless energy and health with their songs and calls, echoing and re-echoing throughout the rooms. Where the species are represented by both male and female birds, breeding and nesting activities have been carried out successfully within the rooms. When birds mate, build nests, and rear young it seems right to assume they are not feeling remorseful at being held in confinement.

The overwhelming success of this new combination Conservatory-Aviary will undoubtedly stimulate interest in vivariums throughout the world. Now it has been conclusively proved that birds, plants, flowers, and fish will all thrive and propagate themselves under the same glass roof, aviaries and conservatories can unite and present a continuous cultural showplace of far-reaching educational values to young and old alike.

There were a few sceptical critics who believed a venture of this type would be doomed to failure from the beginning, their reasoning being that the birds would destroy the plant life and mess up the exhibit areas to such an extent it would become unsightly. The rule of success



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SIXTY BIRDS REPRESENTING TWENTY-EIGHT SPECIES, AND FIFTEEN
FAMILIES MAKE THEIR HOME IN THIS CONSERVATORY ROOM

[To face p. 70.



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[Harold Corsini

THERE ARE NO BARRIERS BETWEEN THE VISITORS AND THE BIRDS.

governing this problem was through the control of population, both as to numbers and to species. Birds known for their destructive tendencies towards succulent plants were either omitted from the rooms entirely, or represented by a few individuals. By controlling the population in this way, plant destruction is of no significance. Once established the plant life grows so profusely it has to be cut back from time to time, otherwise it would completely take over the rooms. Insect pests pose a more serious problem as poisonous insecticides cannot be used, being fatally disastrous to the birds. The insectivorous birds keep the plants clean of mealy bugs and aphid, but the scale insects have to be controlled manually. The foliage is kept clean by the morning and afternoon syringing of the plants and any bird droppings that may have spotted the leaves washes off readily.

With no need for far-reaching vision it is now possible to predict the progress of new aviaries in the future. Large conservatory-type structures will be built and planned along ecological lines by scientists representing all the fields of our natural sciences. Together they will be able to plan authentic ecological controlled rooms, of the various life zones, complete with the dominant plants and birds endemic of the different areas chosen. These displays will undoubtedly take the place of existing bird and plant exhibits as we know them in our zoological gardens, aviaries, and museums of to-day. In such buildings, where birds and plants can be kept under continuous surveillance, ecological studies of their inter-relationship will advance rapidly. The educational and scientific prospects for such buildings will have tremendous influence on the studies of natural history in the future.

Few people have an opportunity during their lifetime to visit tropical countries, where in their leisure hours, they can make trips into remote areas to observe and study the flora and fauna. With such buildings as the Conservatory-Aviary within the limits of our modern cities, many of the most interesting exotic birds and plants can be studied in comparative comfort, without being subjected to the rigours of tropical exploration. Jungle entanglements, biting insects, poisonous snakes, are far away when one enjoys the thrill of watching a flame-coloured "Cock of the Rock" fly from tree to tree in the new Conservatory-Aviary. Toucans with their large colourful bills, the piercing calls of the Naked-throated Bell Birds, the pendulum tail movements of the Motmot, the cordial greeting of the Javan Hill Mynah are but a few of the many interesting and colourful tropical birds you will encounter. Many visitors are thrilled to see how bananas grow while others are amazed at the phenomenal growth rate of the bamboo shoots, growing twelve inches a day. Flora and fauna, the combination of the two makes an impressive exhibition.

Although many of us have dreamed of such a place the credit for seeing these dreams realized belongs to Mr. Howard B. Stewart,

Director of Parks and Recreation ; Frank Curto, Horticulturist in charge of Conservatories and Gardens ; Arthur R. McLennan, Superintendent, Bureau of Administration. Their far-reaching vision has advanced methods of bird and plant exhibition to a new and higher plane.

Since the doors of the building opened on 10th August, 1952, many thousands of visitors have acclaimed and voiced their enthusiasm for this new type of exhibit. Students in nature and biology classes, Nature photographers, artists, young and old alike, from all walks of life can spend many enjoyable and instructive hours in the new Conservatory-Aviary.

* * *

MEMORIAL TO THE DUKE OF BEDFORD

In response to numerous requests it has been decided to launch an appeal for funds for a Memorial to the late Duke of Bedford. The memorial will take the form of an aviary to be erected in the Zoological Gardens at Regent's Park, London, where the Zoological Society will maintain a collection of homing Budgerigars at semi-liberty. In addition, it is proposed to provide a Challenge Cup to be known as the "Duke of Bedford Memorial Trophy" for the best Parrot-like bird, to be competed for annually at the National Cage Bird Exhibition. The appeal committee consists of Mr. Alfred Ezra, President of the Avicultural Society, Miss E. Maud Knobel, Messrs. E. J. Boosey, B. H. Dulanty, S. Porter, A. A. Prestwich, D. Seth-Smith, J. J. Yealland, and R. C. J. Sawyer (Hon. Treasurer).

The Council of the Avicultural Society have decided to give the appeal every support, and it is hoped members of the Society will send donations, however small, to the fund for a Memorial to this great aviculturist, to whom aviculture in general and the Society in particular, owe so much.

Cheques, postal orders, etc., should be sent to :—

The Hon. Treasurer,
The Duke of Bedford Memorial Fund,
c/o Zoological Society of London,
Regent's Park,
London, N.W. 1.

* * *

THE SOCIETY'S MEDAL

The Council has awarded the Society's Medal to A. A. Prestwich, for breeding the Lineolated Parrakeet (*Bolborhynchus lineola lineola*).

* * *

BRITISH AVICULTURISTS' CLUB

The forty-second meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 10th March, 1954, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss P. Barclay-Smith, B. Benedict, Miss K. Bonner, Captain A. A. Clarence, G. T. Clark, Mrs. G. T. Clark, W. D. Cummings, A. H. D'Aeth, J. O. D'eath, B. H. Dulanty, O. E. Dunmore, A. Ezra, Miss S. A. Fothergill, H. J. Harman, R. E. Heath, Dr. E. Hindle, G. T. Iles, Miss M. H. Knobel-Harman, Dr. F. B. Lake, G. C. Lynch, P. H. Maxwell, G. S. Mottershead, S. Murray, S. Porter, A. A. Prestwich, J. H. Reay, D. H. S. Risdon, R. C. J. Sawyer, A. E. Sibley, E. H. Tong, E. N. T. Vane, N. S. Walker, C. H. Wastell, H. Wilmot, H. Wallace Wood, J. J. Yealland.

Guests : Dr. K. Aylwin-Gibson, J. Bailey, Miss E. V. Baxter, Mrs. Carson-Roberts, S. A. Croucher, Miss H. Gentry, Mrs. B. H. Claeson Gordon, M. L. Jones, Mrs. F. B. Lake, H. M. Luther, Sir Philip Manson-Bahr, Lady Manson-Bahr, Mrs. H. Maurice, Mrs. S. Murray, Mrs. J. H. Reay, Mrs. D. Seth-Smith, Mrs. E. H. Tong, Mrs. C. H. Wastell, Miss M. White, Mrs. H. Wilmot, W. A. Wood, A. N. Other.

Members of the Club, 38 ; guests, 22 ; total, 60.

Sir Philip Manson-Bahr showed slides and paintings to illustrate "Some Fijian Birds in Captivity." Sir Philip first visited the Fiji Islands in 1910, and during a stay of fifteen months had considerable experience in keeping some of the native birds. Several species were successfully brought home to England ; amongst which the Ruffed Lory, the Taviuni Parrakeet, and Peale's Parrot Finch were the first brought alive to this country. Sir Philip again visited the Islands in 1950, and described the vast changes since his previous visit. Due to the depredations of the introduced mongoose some species were now on the point of extinction, others had changed their nesting habits.

The audience signified by its sustained applause that it had greatly appreciated Sir Philip's graphic account.

ARTHUR A. PRESTWICH,
Hon. Secretary.

REVIEW

BIRD-RINGING. The Art of Bird Study by Individual Marking.
By R. M. LOCKLEY and ROSEMARY RUSSELL. Messrs. Crosby
Lockwood and Son, Ltd., London. 1953. Price 9d. 6d. net.

This is an attractively presented little book, and contains chapters on "The History of Bird Ringing", "The Value of Bird Ringing", "The Technique of Bird Ringing", "Trapping Birds and Rings", and "Records and Field Equipment". It is written in an interesting and readable style, but it is unfortunate that the authors have not been more careful in checking their dates and other precise information. On page 6, for instance, the establishment of the Royal Hungarian Central Bureau for Ornithology is given as 1903, whereas this should have been 1908, and the date of the establishment of the Heligoland station as 1904 instead of 1909. Further, on the same page, reference is made to work done in Spain which is no doubt a mistake for work done in Portugal, and a distinguished Civil Servant is designated "Professor", a title he has never possessed.

Moreover, it is rather surprising that though the authors acknowledge the "bibliographical assistance" given by Dr. W. Rydzewski, no acknowledgment is made to the extracts which have been taken from that author's paper "A historical review of bird marking" (*Dansk Ornithologisk Forening's Tidsskrift*, May, 1951), which are given in the first chapter.

P. B-S.

* * *

NOTES

CORRIGENDUM

Page 32, line 27. For "Green-winged Malkoha" read "Green-billed Malkoha".

THE ST. THOMAS CONURE

During the time the parrot ban was suspended many Conures with orange-yellow cheeks and orange circles round the eyes were imported. For reasons best-known to themselves the "trade" sold them as St. Thomas's Conures. Strangely, none appears to have questioned this name, although even a moment's thought would have made it obvious that this was very probably a misnomer—it being most unlikely that so many Conures could have come from an island the small size (32 square miles) of St. Thomas, one of the Virgin Islands.

While in England during the summer, Dr. Lendon saw specimens at the London Zoo, "*Darenth-Hulme*," and elsewhere, and immediately expressed his disagreement with the identification. The Doctor gave it as his opinion that this co-called "St. Thomas's" was really the Yellow-cheeked Conure, *Aratinga pertinax chrysophrys*, of British Guiana, Surinam, and Cayenne: this identification has since been confirmed by reference to the skins at the British Museum (Natural History).

Dr. Lendon informs me that when on a recent visit to the Brookfield Zoo, Chicago, he saw a real St. Thomas Conure (*A. p. pertinax*). According to Karl Plath this bird, the survivor of four, is considered really rare.

Other vernacular names for *A. p. chrysophrys* are Golden-eyebrowed and Guiana Brown-throated Conure.

A. A. P.

SUSCEPTIBILITY OF MOUSTACHE PARRAKEETS TO PNEUMONIA

Further experience with the Moustache Parrakeet tends to confirm their susceptibility to pneumonia as discussed by Mr. Buckingham-Jones.

My birds were kept in unheated outdoor flights all the year round and appeared to be perfectly fit and happy at all times. They were not shut in at night, but I was always somewhat concerned for them in very cold weather as all *Psittacula* are vulnerable to frostbitten feet. I am afraid that at that time I felt it worth risking a loss as they were readily replaceable whilst the ban was raised on Parrot importation.

In the autumn, however, three birds were lost in cold, wet, changeable weather. The first was a hen found dead on the floor of the flight, but as a considerable disturbance had been heard during the night with owls, it was assumed that this was a result and no post-mortem was made. The second and third were both cocks and had precisely the same symptoms and result. Neither bird was thought to be ill but just doubtful about nine o'clock in the morning, they were both watched almost continuously for a couple of hours when it was decided to bring them in as a precaution. One bird sat on the perch all day, ate nothing, looked better late at night, and was dead early the next morning. The other bird seemed to collapse whilst his cage was being warmed up and although he was only a doubtful bird when I went for the cage, ten minutes later he was on the floor of the flight in a pretty bad way and died in about four hours.

It would appear, therefore, that these birds are susceptible to pneumonia, but are also extremely resistant to it in displaying any symptoms thus making diagnosis almost impossible. The only remedy would appear to be prevention, as a cure is almost out of the question at so short notice. Pneumonia in birds is almost always incurable. I have tried penicillin, but this is useless if administered orally, it may have a chance if injected into the blood by hypodermic. Recently, however, I have heard of cures being effected with aureomycin on the continent (administered orally), I have also tried it myself on two cases and both have been successfully saved. It must be admitted that the steps were taken on suspicion rather than diagnosis, so that although my birds recovered I cannot guarantee that they ever actually had pneumonia. Perhaps some of our medical members can give further authentic information on these possibilities.

E. N. T. VANE.

* * *

CORRESPONDENCE

PRINCESS OF WALES OR QUEEN ALEXANDRA PARRAKEETS

I notice that in his interesting account of the National Show, Mr. Seth-Smith deplores the fact that people will persist in referring to what he prefers to call the Queen Alexandra Parrakeet, as the Princess of Wales Parrakeet, since, as he rightly points out, England has had more than one Princess of Wales, but only one Queen Alexandra.

Unfortunately, however, were his suggestion adopted, and taking into account people's incurable habit of abbreviating names (Budgerigar . . . Budgie . . . Budge !), I am afraid it would be no time at all before the Queen Alexandra Parrakeet became simply the Alexandra Parrakeet.

This, in turn, would lead to endless confusion between the Alexandra Parrakeet and the much commoner Alexandrine Parrakeet, and one can well imagine the acrimonious correspondence that would ensue if somebody—possibly in all innocence—sold one of the latter as one of the former !

I have sometimes heard Princess of Wales Parrakeets referred to as Princess Parrakeets, but this does not matter so much, as there is no other Princess Parrakeet, nor any with a name at all resembling it.

E. J. BOOSEY.

BRAMBLETYE,
KESTON, KENT.

Mr. Seth-Smith, in his National Show report, says : " I wish they would not persist in calling this bird the ' Princess of Wales Parrakeet ' ."

To be logical and correct one must call a bird by the name originally given to it. This bird was named in 1862 and was therefore known by no other name until this lady became Queen some forty years later. The fact that the title persists as the most commonly used name for this bird to-day speaks for itself.

Surely it is not suggested that every time a title of address is altered for an individual, the name given to anything as a mark of respect to that individual must also be changed in scientific records. Otherwise we should now have to call the Stanley Parrakeet the Derbyan, since it was named after the Earl of Derby who was then Stanley, and what would happen to the other Derbyan Parrakeet. The Mrs. Johnstone Lorikeet might have to become an entirely different bird if that lady had happened to re-marry. A newly discovered species might be called the Cornwall Parrakeet, later on this might be changed to the Prince of Wales Parrakeet, and even still later to the King Charles Parrakeet. Let us be reasonable and stick to the most popular and proper name, " Princess of Wales," in any case the scientific record retains the essential dedication "*alexandriae*".

E. N. T. VANE.

FAIRACRE,
BALLINGER,
GREAT MISSENDEN, BUCKS.

BREEDING OF RED-BELLIED CONURES (*Pyrrhura vittata*)

I am requested by Sir Edward Hallstrom to inform you that the birds he bred were Red-bellied Conures (*Pyrrhura vittata*) as described on page 133 of *Parrots and Parrot-like Birds*, by the Marquess of Tavistock.

The following notes, as dictated by Sir Edward on 8th February, 1954, no doubt will be of interest to you and the Society members :—

These Conures were bred in an aviary approximately 3 feet wide, 6 feet high, and 16 feet long, with one end covered, back, sides, and top, for about 3 feet, and a cover over the front of the aviary for about 3 feet to protect the food and water containers. The nest used was an upright one of the grandfather clock type. Three eggs were laid but only one chick was reared and this is now about twelve months old.

You may also be interested to know that during the last twelve months Sir Edward has bred the following : 2 Muschenbroek's Parrots, 1 Double-eyed Dwarf Parrot, 8 Eclectus, 1 Alexandrine × Indian-Ringneck hybrid, 10 Hooded × Many-coloured hybrids, 6 Hooded Parrots, 1 Lesser Sulphur-crested Cockatoo, 1 Blue-eyed Cockatoo (New Britain), 60 to 70 African Lovebirds, such as the Peach-faced, Masked, Black-cheeked, Fischers, as well as quite a number of lutino Nyassas, and in addition to these, of course, Sir Edward has bred quite a number of the commoner species such as Rosellas, Pennants, Scarlet-chested, Turquoisines, Red-collared Lorikeets, etc.

Many of the young cock Hooded-Many-coloured hybrids are almost identical with the Paradise Parrakeet, but unfortunately there has only been one female, which is at present mated to an unrelated cock bird, and it will be very interesting to see the results—if any.

The African Grey Parrots have had chicks and have reared them almost to maturity. These birds nested in a vertical hollow log about 2 ft. 6 in. down from the top, with wire netting on the side to enable the birds to get down easily, but it would almost appear that the birds had jumped down on the young birds and killed them.

The Lesser Sulphur-crested Cockatoos also damaged the wing of one of their youngsters by jumping on them, but all nests are now on a slope to ensure that the birds walk down and do not jump down on the youngsters.

At the present time there is a Yellow-tailed Black Cockatoo sitting on an egg and Sir Edward hopes that the young bird will appear within the next few days.

The Blue-eyed New Britain Cockatoos have bred in a heavy box-type nest and have only had one chick at a time, although two eggs were laid on several occasions. It was noted that the male sat on the egg most of the time, but occasionally both birds were in the nest, but on the majority of occasions the hen was the only one seen flying in the aviary.

The Musschenbroek's and Double-eyed Dwarf Parrots were most difficult to rear. Although the Musschenbroek's, when first caught, is a seed-eater, it cannot rear the youngsters on seed, and after losing several young birds I drove nails into the perches nearest the door, and every morning pushed an apple on to each nail, and the birds were thus able to feed their young ones with soft food. It was also impossible to encourage the Musschenbroek's to go to the floor of the aviary for water, and as a result the water was put on the same level as the food—about 5 feet from the ground. Many young Double-eyed Dwarf Parrots were hatched and lost before I was able to give them food on which they could rear their young. Millet or Pannicum seed that had been boiled with figs and syrup solved the problem. This also created another problem—ants. Although I have about 10 pairs of Double-eyed Dwarf Parrots the food difficulty is such that I have only two pairs set up for breeding. Double-eyed Dwarf Parrots will eat apples the same as described for the Musschenbroek's, and they will also eat canary and sunflower seed, but destroy many more kernels than they eat.

At the moment there are two pairs of Macaws on eggs. The Blue and Yellow and the Red and Yellow. The Red and Yellow have reared five youngsters this year, but the Blue and Yellow have not yet been successful in rearing their youngsters.

About February each year for the last two years the Hyacinthine Macaws have gone to nest, and have been observed mating. The eggs appear to have been fertile, but neither clutch has hatched. A pair of young Hyacinthine Macaws are very interested in one another and spend a considerable amount of time in the nest.

At the moment a pair of Blue and Yellow Macaws have three babies, whilst a pair of Red and Yellow are sitting on eggs.

WALTER H. TURNER.

462-4 WILLOUGHBY ROAD,
WILLOUGHBY,
SYDNEY, AUSTRALIA.

BREEDING RESULTS FOR 1953 AT HILLINGDON

Regarding breeding results for 1953, three pairs of Plumheads laid sixteen eggs between them; unfortunately these were all spoilt at various times during incubation by cats getting on top of the flights and disturbing the hens. Bourkes reared five very nice young and Cockatiels reared four; in the case of Many-colours, seven eggs were laid but no attempt was made to incubate. Elegants had two clutches of five eggs, both being infertile, likewise the Princess of Wales had eight eggs, found to be infertile after sitting the full time. A yellow Redrump also had four eggs but was disturbed whilst sitting. Stanleys, Barrabands, and Rock Peplars all spent a great deal of time in their nest-boxes but did not lay.

Good fortune, however, was registered by having a brood of three Painted Finches reared; all turned out cocks, a second pair nested and laid two clutches of five eggs but made no attempt to sit. One pair of Gouldians, Black-headed cock and Red-headed hen, nested, reared two very fine youngsters and carried on in the same nest without a break, producing two more; eight clear eggs were found when clearing out their nest-box; incidentally, this pair have gone to nest again and have youngsters. Three other pairs did precisely nothing towards increasing the Gouldian population.

So much for 1953, what of 1954?

As planned, it is up to two pairs of Plumheads, two pairs of Many-colours, two pairs of Bourkes, two pairs of Rock Peplars, a pair of Cockatiels, a pair of Moustache, I hope to emulate friend Vane's success with these attractive and amusing birds. A pair of Princess of Wales and Barrabands, and finally four pairs of Gouldians plus youngsters, and two pairs of Painted Finches; not a terrific collection by some standards but enough to cope with in a limited leisure.

J. H. REAY.

CRANMORE,
THE CLOSE,
HILLINGDON, MIDDLESEX.

THE AVICULTURAL SOCIETY RECEIPTS AND PAYMENTS ACCOUNT

Year ended 31st December, 1953.

[illegible]

I have examined the above Account with the books^m and vouchers of the Society and certify it to be in accordance therewith. I have verified the Bank Balance.

LONDON.
J. WATKIN RICHARDS, } *Hon. Auditor.*
Certified Accountant.

CANDIDATES FOR ELECTION

- B. BELFIELD, Alma House, Dalton, Parbold, Nr. Wigan, Lancs. Proposed by Miss K. Bonner.
- Right Hon. the Viscount CHETWYND, T.D., F.S.A., F.Z.S., Eastbury House, Nr. Newbury, Berks. Proposed by E. J. Boosey.
- W. G. CONWAY, St. Louis Zoological Park, St. Louis 10, Mo., U.S.A. Proposed by Karl Plath.
- T. O. EVANS, 12 Bedford Gardens, Luton, Beds. Proposed by Miss K. Bonner.
- K. R. E. GREWCOCK, 36 Station Road, Marston Green, Nr. Birmingham. Proposed by A. A. Prestwich.
- W. KLÖVEKORN, Pfalzdorferstrasse 61, (22a) Goch-Rhld, Germany, British Zone. Proposed by A. A. Prestwich.
- W. MANKEL, Bahnhofstrasse 44, Dörnigheim am Main, Germany. Proposed by G. A. Gjessing.
- Mrs. K. M. McKEE, 2044 Riverside Avenue, Trail, B.C., Canada. Proposed by Miss K. Bonner.
- J. J. MILLINGTON, Barn Close, Bushby, Leicestershire. Proposed by P. A. Birch.
- T. F. E. NIXON, "Honeystones," Leverington, Wisbech, Cambs. Proposed by Miss K. Bonner.
- F. PRIP, Sorrentovej 48, Copenhagen S., Denmark. Proposed by Miss K. Bonner.
- G. RANDAU, Avenida Rui Barbosa 500, Recife, Pernambuco, Brazil. Proposed by T. Crewes.
- Miss A. REED, 941 Chelsea Cloisters, Sloane Avenue, London, S.W. 3. Proposed by Miss K. Bonner.
- H. RUBNER, Kunstmühle, Erlangen-Bruck, Bavaria, Germany. Proposed by C. af Enehjelm.
- A. RUTGERS, Boeckenrode, Joppe, Holland. Proposed by Miss K. Bonner.
- K. M. SCAMELL, 1 Marine Crescent, North Drive, Great Yarmouth. Proposed by Mrs. K. M. Scamell.
- Dr. H. SCHUSTER, 38 Rue V. Hugo, Foulquemont (Moselle), France. Proposed by A. A. Prestwich.
- F. SMITH, 12 Nabs Head Lane, Samlesbury, Nr. Preston, Lancs. Proposed by Miss K. Bonner.
- L. C. P. WEALE, 13 Overton Road, Southgate, N. 14. Proposed by A. A. Prestwich.
- H. WILSON, 10 Leslie Avenue, Thornton, Blackpool, Lancs. Proposed by Miss K. Bonner.

NEW MEMBERS

The forty-eight Candidates for Election, proposed in the January-February, 1954, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

CHANGES OF ADDRESS

- A. DOSSCHE, to rue de l'Avenir 38, Mont-St. Amand, Gand, Belgium.
- P. FOSTER, to 20 Leicester Avenue, Timperley, Cheshire.
- C. P. GUY, to High Lodge, Lamorna Bird Farm, Combe in Teignhead, S. Devon.
- KARL PLATH, to 110 S. Wesley Avenue, Oak Park, Ill., U.S.A.
- Mrs. S. PEASE, to R.R.1, Dolgeville, New York, U.S.A.
- R. R. P. VAN DER MARK, to De Kweekhoeve, Van Helvoortlaan 31, Woerden, Holland.
- R. I. WHITE, to 2210 Mountain Blvd., Oakland, Calif., U.S.A.

DONATION

(Coloured Plate Fund)

B. LITTLECHILD . . . 10s.

AMENDED ADDRESS

Major J. FINDLAY, D.S.O., F.R.Z.S.; "Cosie Brae," West Cults, Aberdeenshire.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Cayley, *Australian Parrots*.—R. G. KIRKHAM, "The Gables," Wynnsward Park, Clonskeagh, Co. Dublin, Eire.

Copies of AVICULTURAL MAGAZINE, 1952, January-February and March-April numbers.—Hon. Secretary, 61 Chase Road, Oakwood, N. 14.

AVICULTURAL MAGAZINE, 1923-1927 inclusive.—J. H. REAY, Cranmore, The Close, Hillingdon, Middx.

FOR SALE

Several pairs of Golden Pheasants, one and two years old.—A. J. CLARKE, Foxhole Cottage, Llanbedrog, Nr. Pwllheli, Caerns.

JUST PUBLISHED

Records of Parrots Bred in Captivity

ADDITIONS

Price 10s. 0d., post free

A. A. PRESTWICH, 61 Chase Road, Oakwood,
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COMPARATIVE STUDIES ON THE BEHAVIOUR OF THE ANATINAE

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DR. KONRAD LORENZ

Price 5/- post free

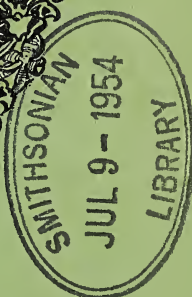
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AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

Secretary-Treasurer : Ivo Lazzeroni, 5034 Templeton Street, Los Angeles 32,
California, U.S.A.

The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford England. Telephone : Hertford 2547-9.



GREEN-HEADED OLIVE SUNBIRD.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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MAY-JUNE, 1954

THE GREEN-HEADED OLIVE SUNBIRD

(*Cyanomitra verticalis verticalis*)

By GERALD T. ILES (Belle Vue Zoo, Manchester, England)

The Green-headed Olive Sunbird, or, as it is also known, the Olive-backed Sunbird, is not one of the most brilliantly coloured of the family, but it is quite pleasingly marked and is of special interest because the hen has a cap of metallic green. A detailed description of the birds is hardly necessary in view of Mr. Reid Henry's exquisite plate accompanying this article. I feel I should mention, however, that because of the hen's unusual possession of the metallic cap she was once considered to be a distinct species. Shelley, in his *Monograph of the Nectarinidae*, shows both sexes with pectoral tufts, the cock's being very pale yellow while the hen's are shown as white. Bannerman, in his *Birds of West Africa*, says that the hen does not possess pectoral tufts, while Jackson, in his *Birds of Kenya and Uganda*, states that in the sub-species *Cyanomitra verticalis viridisplendens* the hen's pectoral tufts are white but not so well developed as in the cock. While the pectoral tufts on our cock bird are visible at all times I am not certain about the hen. She appears to have a few pale yellow feathers at the shoulder tips.

Our pair of Sunbirds were caught by natives in the Kissy coastal area near Freetown, Sierra Leone, for Mr. Kenneth Smith during the early part of 1951, and he brought them to England and subsequently to the Zoo in May of that year. Where they were found this species is fairly common and the birds were seen feeding from flowers on several occasions. Ours were sent to us as a mature and an immature cock, but with the aid of Shelley's *Monograph* I quickly identified them as a true pair. The two birds have always been kept in separate cages, as I have had unhappy experiences with fights. The cock bird is exhibited in the range of Sunbirds in our Hall of Living Jewels, while the hen has always been kept in the Stock Room where she has become quite a pet.

Each evening I feed all the Sunbirds myself, and through doing so

I have had quite a lot of personal contact with this particular pair. I have become greatly attached to the hen and find she has a very charming and confiding nature. She appears to be entirely without fear, and a finger presented to the front of the cage brings her over immediately in order that she can probe around the nail with her beak, while the tip of the tongue is gently extruded. I catch spiders for this Sunbird on every possible occasion, and she becomes extremely excited when she sees me approaching with one in a bottle. Whether spiders are available or not she always has a mealworm each night "to go to bed with". I pinch off the top of the mealworm and squeeze out the soft parts and present it to her in this way. Her method never varies ; she always swallows the soft parts of the worm in two or three gulps, and then takes the body of the mealworm in her beak and generally plays around with it until she finally loses interest and allows it to fall. When I am replacing the liquid for the night feed the hen Green-headed Olive is the last Sunbird in the line, and if she feels I am taking too long about reaching her an inquiring head comes through the front of the bars and I see her beady eye watching me along the line of cages. She looks particularly beautiful when she does this, as there is a light point immediately above her cage and with the head through the bars the metallic feathers catch the full glow of light so that they glitter like a jewel. When I approach with the re-filled feeding bottle the bird never waits until it is clipped into place, but she is always so keen to feed that her head is pushed through the bars to drink before I have an opportunity of clipping the bottle into position. She has a pretty little twittering noise at times but over the three years in which I have had her I have only heard this song on a very few occasions.

The cock bird is in a glass-fronted exhibition cage and is not quite so tame as the hen. He has, however, one rather endearing habit : when I have replaced the feeding bottle at night he always gives what sounds to me like a cry of derision as I am closing the door of his cage.

To conclude, I would like to ask a question in the hope that some readers of the Magazine might be able to help me. Why do Sunbirds place various materials in the spouts of their feeding bottles ? Not only do the Green-headed Olive do this but many other species of Sunbirds as well. I have noticed that mealworms, sawdust, and even small pebbles are dropped into the open spouts of the bottles.

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FACTORS IN MIXING PSITTACINES

By DAVID M. WEST (Montebello, Calif., U.S.A.)

Probably one of the recurring difficulties the average aviculturist is confronted with is the problem of just how to keep more birds without continually expanding his facilities. The possibility of keeping more than one pair of psittacine birds together and still breeding them, is the obvious answer, and yet this solution can be filled with problems and dangers.

The standard texts dealing with psittacine birds under avicultural conditions do not shed much light on the possibilities of keeping two breeding pairs of birds in a single breeding aviary. The usual remarks are to the effect that the bird under consideration can or cannot be kept in a mixed collection. This is altogether unsatisfactory information—for what we need to know is just what birds may be kept together in a mixed breeding situation.

Over a course of several years I have kept a number of birds together in breeding pens which average some fifteen feet long, four feet wide, and seven feet high. As a result of this experiment I have found that some birds can very definitely be kept together in a breeding situation where peace and calm exist during the entire year.

Whenever the situation arises where one decides to mix the occupants of an aviary it is a very good plan to have two separate feeding and watering stations to begin the experiment. In some cases the only antagonism shown is at feeding time when the stronger pair of birds may scare the other pair of psittacines away from the feeding station. Over an extended period of time this can result in a gradual weakening of a bird's stamina—but this situation can be easily overcome with two separate feeding stations. A second consideration that is wise, is to place the weaker or more timid pair of birds into their new cage a few days prior to introducing the second pair of birds that you feel might be the aggressors. This method gives the more timid pair the chance to learn the cage and to learn where the higher perches are, and so avoid the first days nervousness when the second pair of birds are introduced.

The only real difficulty arises during the springtime, when mating and nesting become the order of the day. This quarrelling over nesting sites is the serious part of determining the success of the entire venture. By placing the nest-boxes in different parts of the aviary, and by providing a variety of nests, some of the difficulties may be eliminated. If one, or both, of the pairs of the birds have previously nested it is a good idea to give them their former nest-box for then they will generally take to this box, and the question of property rights is decided without fussing and fighting.

The following is a list of some of the birds that I have kept under mixed conditions, and the general results of such a practice.

Queen Alexandra's. This species is very easy to mix with other birds that are not too aggressive. I have kept pairs of Alexandras with Bourke's, Turquoisines, Elegants, and Scarlets, with perfect results. They will also agree with budgies, single pairs of African *Agapornis* (except Peach-face), and with Cockatiels, Plum-heads, and Javan Parrakeets. In very large pens I would have no hesitancy in mixing them with Kings, Crimson-wings, or small American Parrots as Lineolated, etc.

Barraband's. This is another species that is most charming in mixed company. They will agree with practically all birds, indeed one must be careful not to put them with smaller but more active and aggressive birds, for they are not really capable of protecting themselves. Besides the *Neophema*, they are safe with even some of the larger birds as Indian Rock Parrots. I have not seen them ever become aggressive even to very small birds such as Zebra Finches.

Crimson-wings. Individual pairs differ greatly in disposition. One pair I have will agree with anything I place with them, while a second pair agreed with Barraband's for a while and then the male Crimson-wing became increasingly aggressive, and they were finally separated. With birds of this individual variation it would be best to try them out on a day when the owner is around to watch. A single pair of Red-rumps kept for a short time with a pair of the Crimson-wings proved to be absolutely impossible, for the Red-rumps literally drove the Crimson-wings to distraction, chasing them and making their lives miserable. It has always been my experience that Red-rumps are totally impossible to keep with others birds—regardless of the size of the birds they are to have as "room-mates".

Kings. These rather phlegmatic birds are of a peaceful disposition. They seem to like to sit on a perch alone—and the only time my pair would get upset was when some *Neophema* would fly to the perch the King would be dozing upon. Then, with great effort, the King would walk towards the bird and scold it off that perch to another—and then resume his nap where he had been interrupted. Kings will agree with Indian birds such as Plum-heads and Ring-necks, and related Indian birds. The one difficulty in keeping other birds in with Kings is that a King takes so much space while flying that it not infrequently alarms the other pair of birds. For this reason a steady pair of birds would be the best choice. In very large aviaries Kings are most desirable, for they will not bother anyone, and there is little chance for a quarrel over a nest, for most California Kings delight in dropping their eggs from the perch—or at best in just laying them hither and thither about the aviary.

Rock Peplars. The remarks under the Queen Alexandra and

Barraband's are equally applicable here. Indeed, the Rock is such a lazy bird that it would appear nearly impossible to upset its placid disposition.

Neophema. These birds are quite easy to mix in with other species that are not too aggressive. They are clever flyers, and so are not easily frightened by some larger, clumsy bird. They require a small nest-box that can be placed up very close to the roof of the cage, so that there is just enough room for them to perch on top of the nest—and very few of the larger birds will try to inspect more than once the small box required for the Grass Parrots. Their steady habits, once used to the aviary, make them ideal for keeping under mixed conditions.

Rosellas. These birds are extremely difficult to keep in with other birds at any time of the year—and during the spring nearly impossible. Individual pairs differ greatly in their temperament. In a large mixed collection some years ago we had a pair of Red Rosellas that raised young each year, and never bothered the other birds (*Agapornis* and *Neophema*) at any time. In smaller breeding cages I would not try to mix any of the *Platycercus* with anything else during the breeding season. Of the group the Red and the Blue seem to be the most aggressive—even to budgies and Zebras, etc. The Pennant's and the Stanley seem to be a little more amenable to group life—but I have never actually tried them with any other bird. Possibly some other reader could shed additional light on this matter.

Barnard grouping. Like their near allies, the *Platycercus*, all the *Barnardius* are inclined to be bullying and aggressive during the Spring season. For this reason I have never kept adult Barnard's in with other birds. Birds of the year are perfectly safe, though Barnard's work in pairs when it comes to bullying other inmates of an aviary.

Psephotus. This group contains some birds that I personally consider absolutely impossible subjects for communal living—and other members that are ideal subjects. The Red-rump I have already commented upon—and I have had Red-rumps (working in pairs) actually murder Zebra Finches, budgies, and Button Quail. The Blue-bonnets are reputed to be very dangerous and aggressive with other birds—though this has not been our experience. In a large mixed collection consisting mostly of odd birds (and the majority males at that), a pair of Blue-bonnets have lived peacefully for over a year. In another cage where a budgie had entered through an error, no attempt was made to murder the budgie. They also appear to be happy with Queen Alexandras and Cockatiels. One thing is sure though—one male Blue-bonnet couldn't be happier than when he is engaged in combat with another of his own species. It is a very poor policy to keep this bird near other Blue-bonnets, for the owner will eventually end up with a number of toeless birds from fights taking place on the wire. Hooded are perfect in every respect and

are never aggressive to other birds. Because the Hooded generally nest at a period in the year when any other bird in its right mind is moulting or resting, there is very little occasion to worry over fights concerning nesting sites. Many-colours are variable in their dispositions. One breeding pair will not tolerate any living thing in their aviary while they are nesting—and even hate and fight the English Sparrows that sometimes alight on their aviary. Another pair is never upset, and though I have not kept birds with this pair during the spring breeding season, the pair were not upset when a year ago a young Bourke got into their aviary when a door accidentally came open. Not wanting to frighten the Many-colours who had young in the nest, I did not catch the Bourke, and he stayed in with the Many-colours for over a month with no bad results.

Asiatic Parrakeets. The only Asiatic psittacines kept in California are the Plum-head, Derbyan, Ring-neck, Alexandrine, and Javan and Moustache. They all seem quite well disposed to company in their aviary, and are not over aggressive. Of the birds mentioned, possibly the most problematical are the Ring-necks. Individual pairs will differ greatly in their behaviour towards other birds—some pairs agreeing and others bullying other birds. I think that the answer here is space—for Ring-necks do agree well in an aviary that is spacious. Moustache and Javan are both peaceful and the large and fierce looking Alexandrine seems the most peaceful of the entire lot. The Derbyan is another bird that does not resent companions—agreeing very well even with budgies. As all the Asiatic Parrakeets nest very early in the year (as compared to the average Australian), there is not much likelihood of any serious disagreement over nesting sites.

African species. Apart from the Senegal Parrot, which seems another perfect aviary inmate, the only commonly kept Africans (here in California) are the various *Agapornis*. I have found that single pairs of the *Agapornis* will agree well with any of the larger birds—both living and nesting well with them. Peach-faces are certainly the most aggressive and I feel the least reliable in mixed collections.

I would not trust the various African Lovebirds with small budgies and finches, but with larger birds they are perfectly safe. As they are very clever about tumbling quickly into their nests, there is little chance that a larger pair of birds would want the Lovebird's nest, filled with straw and leaves, as is generally the case. By hanging the Lovebird nest up close to the roof and leaving just enough space for the Lovebirds to sit on the nest top, all should be calm and peaceful. I frequently allow no perch outside the nesting entrance to stop or at least help prevent the larger and curious birds from looking in with such great ease. Last year a female Barraband made regular visits

to a young family of Bourke's by sitting on the perch outside the entrance hole and looking in at the mother Bourke feeding her babies. As the Bourke's did not object all was well—but this year the Barraband will have a hard time because the perch has been removed. This makes the entrance to the nest a little more difficult for the smaller birds too—but they do not seem to mind, and are certainly not discouraged by this.

American species. The beauty of some of the American psittacine species is undeniably great, but this is quite eclipsed by their voices. For this reason they have not been extensively kept even here in California. Some of the species appear to be not too aggressive, while others may be considered as too aggressive for mixed company. The only collection containing many American species here in California is that of Mr. G. Rayson Brown in Arcadia. On visits to his aviaries I have noticed that some Conures are being kept in with other birds—but generally they are just unmated odds and ends. Possibly he would let us know his observations on these American species. Mr. J. Buteyn, at San Luis Rey, also keeps some excellent American species, and at least two of the Conures in his collection have not been identified.

Lories. The Lories are so very aggressive that they cannot be kept with other birds. Mr. G. R. Brown once told me that a cock Ring-neck accidentally got into a pen containing a pair of Dusky Lories, and that by the time he discovered this, all that was left of the Ring-neck was a pile of green feathers on the floor. It does appear quite possible to mix Lories together, for Mr. Sheffler has done this in Arizona, keeping a number of different kinds together, but in aviaries, with no nesting facilities.

Eclectus. These large and beautiful Parrots do not seem to object to having companions. A pair in my father's collection have a pair of Cockatiels in their pen, and both the Eclectus and the Cockatiels get along fine. A second pair do not object to some lutino budgies that are housed with them. Some of the larger Parrots are slow moving, and so not likely to cause any trouble with any companions that are swift on the wing.

In a large pen (some 15 feet wide, 20 feet long, and about 12 feet high) the possibilities of keeping a variety of odds and ends is enormous. At the present time in this pen there are a large number of birds that are either too young to breed or a mate is not available for them. The following birds are all living in a state of contentment and agreement: a cock Blue Rosella, a cock Stanley, female Yellow Rosella, a cock Barraband, female Crimson-wing, three Ring-necks, a young Pileated, a pair of young Many-colours, a Lineolated, a pair of Eclectus, a Cockatiel, and a Blue-bonnet. In addition to this there were (prior to their being mated up) a King, a Red Rosella, and a Pennant's.

Although this cage contains birds that doubtless would fight one another in smaller aviaries, their present home appears large enough for all to live in peace. The precautions of double feeding stations and drinking fountains are doubtless no hindrance to the present happy state.

I think that the most important points in mixing psittacines are the double feeding and drinking stations, the provisions of nesting sites that are as far apart as is possible, and the provision of suitable perching facilities. It would be most interesting to have other members' experiences in mixing various birds. Who knows—maybe I'll find some place to put one more pair of birds without building a new aviary? ! !

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NOTES ON HARTLAUB'S TOURACOS

By D. H. S. RISDON (Dudley, Worcs., England)

Cecil Webb's very interesting article in a recent issue of the Magazine concerning the wild life of these birds prompts me to write the following notes on observations I have made of their habits in captivity.

In 1950 there was an adult pair of Hartlaub's Touracos at Dudley Zoo. They were housed in one of the large flight cages in the Bird House on their own, and that being my first summer at Dudley I was bitten with the desire to try and breed them.

I had no idea whether or not they were a true pair. There was certainly no obvious difference between them as far as appearance went, but they got on well together so we fixed up a bunch of twigs in a corner of the flight. The middle of this was flattened out and a shallow dish-shaped piece of wire netting was fixed to form a platform. On this some coarse hay was shaped to form a foundation for a nest. Needless to say this corner of the cage was screened from the public to give the birds as much privacy as possible.

Much to our delight the birds took to this nesting site almost at once. They spent a good deal of each day sitting on the platform side by side and I think they roosted there at night. I did not know then, as I discovered later, that these Touracos much prefer to roost on a platform of this nature rather than a perch, and in subsequent years, when I had them in an outdoor aviary containing several open-fronted nest-boxes, they invariably used them to sleep in.

In spite, however, of taking so well to the site we made for them the birds made no obvious attempt to build a nest. They did, however, show other signs of breeding condition. One bird, presumably the male, fed the other one with food regurgitated from the crop and

frequently displayed by tilting its head right back till its crest touched its back, exposing the throat, meanwhile uttering a low growling note. A form of threat display is to depress the crest which has the effect of enhancing the white patches in front of the eyes. At such times these patches appear dazzlingly white and are obviously intended to intimidate a rival. These are the only displays I have ever seen them do which is surprising considering the lovely colouring of Hartlaub's Touracos. Somehow I would have expected them to show the beautiful carmine of the flight feathers, but this never seems to be seen except when the birds are flying.

Matters continued in this sort of stalemate for some weeks and I began to think our efforts had been in vain and that the birds were just spoofing us, when suddenly one died. To our intense disappointment the post-mortem examination revealed an impacted egg in the oviduct, so that was that. Subsequent events, of which more anon, have more or less proved the other bird to be a cock and I am afraid that, although we imported some more the next year, the bird that died was the only hen we had.

The newly imported birds consisted of four obviously hand-reared specimens in immature plumage. This was like that of the adult, but all the colours were duller. Of these one died soon after arrival and we placed the other three with the single old bird in the Bird House where they passed the winter.

By the following spring the young ones had moulted into adult plumage and then trouble started. First one died suddenly and mysteriously, and some weeks later two of the remainder set about the third. Fortunately it was discovered what was happening in time and the odd bird was removed. Naturally I thought the two aggressors were a true pair which had come into breeding condition, and that summer (1952) I removed them to my garden aviary which is planted and not being directly accessible to the public has some degree of privacy.

Here the birds spent the summer and did absolutely nothing in spite of being given a variety of nesting sites in the shape of open-fronted boxes, closed boxes with only a hole entrance, and wire platforms fixed both in the growing bushes, as well as in bunches of twigs fixed up on the walls. They did, however, use the boxes for sleeping in, but never together as did the original pair. Each bird slept in a separate box. They never went to them until dusk when, having carefully looked about them, to see if the coast was clear, they made a sudden dive into their respective boxes and settled down for the night.

Although they didn't breed they did, however, give me a lot of joy in watching them in a really big aviary where they could show their graceful flight with the flash of brilliant carmine as they glided

from perch to perch. I think if I were only allowed to keep one sort of bird I should plump for Touracos. They seem to me to combine all the best qualities of the pigeon, parrot and pheasant families rolled into one. Their colouring is exquisite, and their movements the essence of gracefulness whether in flight or hopping, skipping and jumping along their perches. Moreover, they have delightful voices which, calling across the garden on a summer's day, make you feel they really have brought a bit of their native jungle with them.

It might be as well to record here the various noises they can make. Besides the well-known Touraco call "wowk wowk wowk" which both sexes seem to use when they are feeling pleased with themselves, there is the growling display note described above, which is also used as a note of aggression. The alarm note is a high pitched "chip chip" and anger aroused say at the sight of a cat is expressed in a kind of chatter which cannot be imitated in writing.

As my garden aviary is only a summer one and has no proper shelter, the Touracos were transferred to one of the Zoo aviaries for the winter where, apart from being shut in at night, they had no extra protection in the way of heat. They came through the Dudley winter, which can be extremely bleak, in fine fettle, which I think proves them to be a hardy species.

When the spring of 1953 came round I again transferred them to my garden aviary and as they still showed no sign of attempting to nest I thought I would see what a little jealousy would do. So I caught up the odd remaining bird which all this time had been living in the Bird House, and put him in with them. I stood by, half expecting there to be a frightful row, remembering how they had attacked him eighteen months before, but not a bit of it. Both birds jumped up one on each side of the newcomer and there ensued what I can only describe as a lot of billing and cooing between all three. So far from fighting they all seemed frightfully pleased to see each other and began feeding each other indiscriminately!

I felt justified, therefore, in leaving all three together to see what would happen. All this time, remember, I had been assuming that the original two were a pair. I had watched them and noted what I thought were differences in their appearance—more white on the facial markings of the cock and so on, but that's where I tripped up and my experience only goes to show how easily one can jump to conclusions. After some weeks of living in harmony the bird which I always supposed to have been the hen became somewhat aggressive towards the other two, then the position would be reversed and one of the others would seem to be top dog for a while.

No serious quarrelling took place, however, and I was content to let well alone, thinking that perhaps they were at last being stimulated into breeding condition.

Alas for my hopes. One morning after a period of tranquility in the aviary I noticed the newly introduced bird was missing. With a sinking heart I searched the aviary and eventually found its corpse crammed in a corner completely scalped. This made me think more than ever that the survivors were a true pair, but this winter, for accommodation reasons they were put back in the Bird House in one of the large built-in cages. They had not been there long before one set about the other and, but for the timely intervention of one of the keepers, would undoubtedly have met the fate of the other bird. As it was the feathers were scalped from the back of its head.

We are now left with two Hartlaub's Touracos living apart and I am reluctantly driven to the conclusion after three years' trying, that all our birds except the first one which died of egg trouble, must have been males—hence no efforts to nest.

Hartlaub's Touracos appear to be perfectly hardy. They stayed each year in an open aviary with only a bit of overhead shelter till well into October when night ground frosts were experienced. Even then they showed no discomfort and were only moved into more sheltered conditions because they are too rare and valuable to be trifled with.

They seem to be entirely fruit eaters and provided plenty of this is supplied, will eat little else. They will take boiled carrot, boiled potato, soaked bread and insectile food under protest, but never touch it if there is plenty of fruit. Grapes and cherries are favourites and privet berries are liked. They have large gapes and swallow grapes and cherries whole, disgorging the stones later. After swallowing a large cherry they sit still with a fatuous expression looking extremely uncomfortable for a few moments while it slips down.

They are keen bathers and although I have examined their bath water most carefully on many occasions, I have never seen any sign of the red colouring matter from their flight feathers being dissolved in the water.

THE AUSTRALIAN COLLECTION

By J. J. YEALLAND

A splendid collection of mammals, birds, and reptiles presented to the Zoological Society in commemoration of the Coronation and the Royal tour of Australia and Tasmania, arrived in London on the 8th April.

Sir Edward Hallstrom was instrumental in arranging this magnificent gift, and sent two of his staff, Mr. W. Turner and Mr. E. Hargreaves, to care for the collection on the long sea voyage. Due to first-class packing and expert care, the specimens arrived in excellent condition.

Taronga Zoological Park Trust; Sir Edward Hallstrom; Mr. David Fleay, the Zoological Society of Southern Australia; the Animals' and Birds' Protection Board, Hobart; the Agent-General for Tasmania; the Zoological Board of Victoria, and the Zoological Gardens of Perth all contributed generously to the collection, which totalled some 190 specimens.

The rarest of the birds are two Baudin's or White-tailed Black Cockatoos (*Calyptorhynchus baudini*), the first to be brought alive to this country for many years. A pair of Greater Palm Cockatoos (*Probosciger aterrimus*) of Cape York peninsula and the opposite coastal areas of New Guinea makes another attractive exhibit and an interesting comparison with two of the very closely allied Aru Island form that have been in the Parrot House since 1927 and 1946 respectively.

Other exhibits of especial interest that have not been in the collection since before the war are Tawny Frogmouths (*Podargus strigoides*), three of them hand-reared by Mr. Fleay; Australian Cranes (*Grus rubicunda*); White-backed and Black-backed Piping Crows (*Gymnorhina hypoleuca leuconota* and *G. tibicen*); Cereopsis Geese (*Cereopsis novae-hollandiae*), and Maned Geese (*Chenonetta jubata*).

Wedge-tailed Eagles; Laughing Kingfishers; Satin Bower-birds; Swainson's Lorikeets; Barraband's, Brown's, Pennant's, and Golden-mantled Rosella Parrakeets; Western Slender-billed, Bare-eyed, Leadbeater's and Greater Sulphur-crested Cockatoos; Bronze-winged, Brush Bronze-winged, Wonga Wonga, and Crested Pigeons; Plumed Ground Doves; Brush Turkeys; Emus; Australian Grey Ducks and Black Swans make up the remainder of the bird collection.

A special display of the whole collection is staged in the Antelope Paddock, and was officially opened on the 26th April by the Hon. Sir Thomas White, the High Commissioner for Australia.

A BRIEF ACCOUNT OF A WONDERFUL DAY SPENT IN SEEING SIR EDWARD HALLSTROM'S COLLECTION OF PARRAKEETS IN SYDNEY, N.S.W., DECEMBER, 1953

By R. G. KIRKHAM (Clonskeagh, Co. Dublin, Eire)

I had come to Australia for a health trip, and to get away from the Irish winter, and was armed with a letter of introduction to that fairy godfather of Australian Aviculture, Sir Edward J. Hallstrom. Immediately on my arrival in Sydney I sent off my letter to him, and then sailed away for a short visit to Fiji and New Caledonia. Within twenty-four hours of sailing I received a Marconigram on board which read : " Delighted to see you on your return to Sydney," and Sir Edward was indeed as good as his word. I called at his office by appointment, and was cordially received and introduced to his chief collector and zoologist, Walter H. Turner, with the instruction to " show him everything ", and that is just what he did.

We started out the following morning at 8.30 a.m., and went first to Sir Edward's beautiful home at Northbridge, which is situated on a narrow neck of land overlooking Sydney Harbour. There the principal collection is housed, in all about 860 birds. The aviaries are built on three sides of the house, and take up, I would say at a guess, about two acres or perhaps a little more. Sir Edward has a great fondness for Macaws and Cockatoos, and where in the past I have seen perhaps five or six in a zoo collection, Sir Edward keeps no less than 67 Macaws of all the well-known species, including several pairs of the giant " Hyacinth " looking very beautiful and in tip-top condition, with not a feather astray. One pair in particular were obviously in breeding condition, making a great fuss of each other. The cock sitting close up beside his wife with " one arm around her neck " as Sir Edward put it. After visiting the Macaws, and feeling a little overwhelmed by them, I asked about Lovebirds, as these are great favourites of mine, and was taken to a range of aviaries each measuring about 10 feet by 6 and 7 feet high. There I was truly amazed to see in each compartment a flock of Lovebirds, nothing less. Sir Edward told me that at the start of each season he puts six or eight pairs of birds in each compartment, with plenty of nest-boxes, and allows them to go ahead without let or hindrance. At the end of the breeding season he usually finishes up with 35 or 40 youngsters in each division, and this goes for Peach-faced (*Agapornis roseicollis*) as well as the other less pugnacious species. I discussed this phenomenon with Walt Turner, and it is his considered opinion that if only a couple of pairs are kept together they usually fight for want of something better to

do, but if four or five pairs share the same compartment, they are so busy increasing the Lovebird population they haven't the time, or the inclination, to fight, and large and happier families are the result. This is something which will be only of purely academic interest to most Lovebird breeders at home, as very few of us have more than one or two pairs of any but Fischer's or Masked, and are too scared of losing any by fighting to risk more than one pair to a compartment.

It gave me a great thrill to see about 40 Black-cheeked and 20 or 30 Nyasas, but the biggest surprise of all was to see ten of the lovely little lutino Nyasas looking, as Ted Vane so aptly put it on one occasion, like "little irate Colonels", their orange-red cheeks giving them a really fiery appearance! Last, but by no means least, about 40 Peach-faced sitting in a row, and living in harmony together. They reminded me of the words of a popular song: "And never is heard a discouraging word," etc.

Having seen and marvelled at the Lovebirds, I mentioned "Princess of Wales" Parrakeets. I liked them so much, and was the proud possessor of an excellent pair. Sir Edward quietly took me to an enclosure near the Macaws, and there I saw them rise in a cloud from the ground where they had been feeding. I just could not guess how many there were, but there seemed to be at least a couple of dozen pairs. They all lived happily with a pair of Blue-bonnets, several pairs of Hooded and Many-colours, and one or two odd birds, and what a picture they made!

After leaving the "Princess of Wales" with reluctance, we made our way to another range of aviaries constructed of concrete, coloured and shaped to look like logs, and of very attractive appearance. These housed a very large and varied collection of Cockatoos, numbering about sixty-five in all, which included the Yellow-tailed Black, the Red-tailed Black, and the White-tailed Black. There were also several pairs of the Palm Cockatoo (*Probosciger aterrimus*) very Black! very Beautiful, and, I should say, very hard to handle! I might mention in passing I also saw a lone specimen of the Lesser Vasa Parrot, also known as the Pigeon Parrot of Madagascar. This is a most unusual looking slim bird, washy black in colour, with a small head, and light-coloured horn beak, about the size of a Rock Pebbler, but with a very long neck, which to my mind, quite spoils its appearance. The lovely little Musschenbroek's from New Guinea, a small dwarf parrot, green shading to yellow, with a crimson breast, is a very friendly little bird which Sir Edward has recently been successful in breeding. In a nearby enclosure was a whole flock of little Fig Parrots (the Double-eyed Dwarf), little bigger than a Lovebird, the cocks with dark red heads and the hens with grey heads. Noisy and chattering, never still, always on the move, they made a most attractive sight.

I also had a very good look at seven Glossy Black Cockatoos, but as there is quite a story attached to them, they must be the subject of some further notes.

After a cup of morning tea with Sir Edward, I was whisked away to his week-end retreat at Mona Vale, about 25 miles outside Sydney, where a small collection of about 100 of the most prized specimens are housed, and there I saw three of the most rare and wonderful Parrakeets in Australia, which I believe nobody else possesses at the moment. Four pairs of "Paradise Parrakeets", two cock Golden-shouldered Parrakeets and a Ground Parrakeet, and all in the same collection, virtually rubbing shoulders together. If I say it was worth travelling from Ireland to see the "Paradise Parrakeets" alone, I know my readers will understand and forgive my enthusiasm. How can I describe them? The cock is a long, slim bird with the forehead and under tail-coverts red; the crown of the head black, the face and breast bright green shading to a blue which reminds one of shining butterfly wings, and the whole bird looking a most graceful and enchanting sight, enough to delight the heart and, whisper it, arouse a little touch of envy in every true bird keeper. My description of this beautiful bird (I'm liable to run out of adjectives when talking about it) is perhaps a little sketchy, but as Sir Edward kindly allowed me to take a colour film of the birds, and they were most co-operative, I am looking forward to seeing, for the first time on any screen, "The Paradise Parrakeet." It should, of course, be explained that they are really Hooded \times Many-coloured Parrakeet hybrids.

The Golden-shouldered Parrakeets, also very rare, and to be found only in one or two places in Australia, was believed by many to be extinct, but was rediscovered by Walt Turner to take their place in Sir Edward's collection. The cock has a black head with a bright golden-yellow frontal band and golden-yellow patches on the wings and shoulders, and the body is bluish-green. The hen is a pale edition of the cock, with the body yellowish-green instead of blue. I might add that the colours of both cock and hen appear to change in different lights.

The Ground Parrakeet is stated in all the best books to be found in the coastal areas in New South Wales, Victoria, South Australia, and Tasmania, but I'm told on very good authority, that less than half a dozen are known to exist in aviaries throughout Australia, in fact very few bird keepers have ever seen one, let alone kept it. Mr. Turner told me they have had great difficulty in keeping theirs. The bird is very nervous and shy, hiding in the grass on the floor of the aviary, and then at the slightest noise or disturbance, hurling itself at the wire netting. It will be interesting to know if a mate can be found and if it can be persuaded to go to nest in an aviary. Time alone will tell.

Sir Edward also possesses the largest collection of Birds of Paradise

in the world, and he is coming to Switzerland in May to lecture on them, their habits and nuptial display, and as I am sure, complete and comprehensive reports will appear in the Magazine, I propose to refrain from comment !

In concluding these notes, I should like to express my thanks and pay tribute to the generosity of Sir Edward Hallstrom. He has done more than any man alive to save many beautiful species of Australian birds from extinction, to preserve them for posterity, and to make it possible for aviculturists in many lands to enjoy their beauty, by sending them to zoos all over the world.

After my visit to Mona Vale, I felt I had seen everything that mattered in the avian world, but not so. Walt Turner took me to Taronga Park, and there I saw many of the treasures presented to Taronga by Sir Edward. Having spent a few hours there, I came to the conclusion that Taronga was misnamed. It really should have been called Hallstrom Park, because Sir Edward, more than anyone else, is responsible for Taronga Park being the finest zoo in the southern hemisphere.

About the birds in Taronga I shall try to tell you a little later !

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

Three species new to the collection have recently been received. They are the Baudin's Cockatoos, on which a note appears elsewhere in this issue ; a pair of Philippine Ducks (*Anas luzonica*), purchased, and a Swainson's Buzzard (*Buteo swainsoni*), presented by the Paignton Zoological and Botanical Gardens.

Other presentations include a Short-toed Eagle (*Circæetus gallicus*) ; a Crossbill (*Loxia curvirostra*) ; a Stone Curlew (*Burhinus ædionemus*), picked up at Biggin Hill during the severe weather of February ; a Gannet (*Sula bassana*) ; six Jobi Island Doves (*Gallicolumba jobiensis*) ; a Fieldfare (*Turdus pilaris*) ; a Hawfinch (*Coccothraustes coccothraustes*) ; a Regal Sunbird (*Cinnyris regius*) ; a Bronzy Sunbird (*Nectarinia kilimensis*) ; a Kenya Malachite Sunbird (*N. famosa ænigularis*) ; and four Uganda Buff-breasted Sunbirds (*Cinnyris venustus igniventris*). The common name of this Sunbird is a poor one, for the area of buff is small and occurs only where the violet of the upper breast meets the orange of the under parts. The Orange-bellied or, as the scientific name suggests, the Fire-bellied would be a better name.

Of the birds received in exchange a Rüppell's Parrot (*Poicephalus*

rüppellii) is of particular interest and rarity. As pointed out by the late Duke of Bedford, this is the only parrot of which the female is more brightly coloured than the male.

An African Ring-necked Parrakeet (*Psittacula krameri*) ; four Peach-faced or Rosy-faced Lovebirds (*Agapornis roseicollis*) ; a Broad-tailed or Eastern Paradise Whydah (*Steganura paradisea nilotica*) ; a Shiny Black Whydah (*Vidua hypocherina*) ; and a Thick-billed Weaver (*Amblyospiza albifrons*) have also been received in exchange.

The King Penguin hatched last summer has completed its moult, shedding its down more quickly than did the previous year's young one.

The Great Condors laid an egg during March, but somehow managed to push it off the nesting ledge on to the unsympathetic concrete below.

Of the four Vieillot's Fire-back Pheasants hatched late last summer one has survived and could now be regarded as being fully reared. Hopkinson records successes in France, but so far as I know this is the first breeding of this pheasant in Great Britain.

* * *

NEWS AND VIEWS

J. M. Spence, Cape Town, has bred one Cape Robin, four Cape White Eyes, two Cuban Finches, one Golden Sparrow, eleven fawn Zebra Finches, and some Waxbills.

* * *

Miss Phyllis Barclay-Smith has been awarded the gold medal of the Sveriges Djurskyddsforeningars Riksförbund for her work in connection with bird preservation, and especially on oil pollution of the sea.

* * *

How many blue Ring-necked Parrakeets will be bred this year ? Already a report has been received of a nest of three hatched.

There is every prospect of the blue Masked Lovebird population of this country being substantially increased. There are now something like a dozen pairs of potential breeders in the hands of experienced aviculturists.

* * *

Included in the Australian collection recently presented to the Zoological Society of London were two Baudin's or White-tailed Black Cockatoos. This is an extremely rare species, and the Zoological Society appears to be under the impression that these two birds are

the first to arrive alive. This is not the case. In Tavistock, *Parrots and Parrot-like Birds in Aviculture*, page 150, we read : " Young birds of this species were imported by Mr. Frostick many years ago, and fed by hand on sponge-cake and hard-boiled egg. He had difficulty in inducing them to take to seed and they unfortunately succumbed to fits, no doubt by reason of the too-stimulating properties of the egg."

In addition, Dr. and Mrs. Anningson, of Cambridge, had one in their collection in October, 1908. Wesley T. Page (*B.N.*, 1908-9, 225) describes this bird, and says it is " probably the only one in Europe ".

* * *

David West writes that his father's blue Fischer's Lovebird has reared a nest of three and is again on eggs.

* * *

Sir Edward Hallstrom reports in a cable dated 6th May that his Glossy Black Cockatoos have hatched and are rearing a young one.

* * *

The Bronze Medal of the Avicultural Society of South Australia has been awarded to L. Ratzmer, for breeding the White-winged Whydah ; and for breeding the Willie Wagtail by the late S. E. Terrill. L. Ratzmer has also been awarded the Society's Silver Medal for the year's best breeding achievement.

* * *

WATERFOWL RINGING SCHEME—DETAILS OF RECOVERIES

<i>Date ringed.</i>	<i>Species.</i>	<i>Ringed by.</i>	<i>Date recovered.</i>	<i>Place where recovered.</i>
7.8.1950	Wigeon	Severn Wildfowl Trust.	19.5.1952	Nr. Syktyvkar Town, Komi Republic, U.S.S.R.
— 1952	—	Severn Wildfowl Trust.	—1.1954	Le Havre, France.
15.10.1953	Carolina ♀	Ministry of Works (Bailiff of Royal Parks).	—4.1954	Birdcage Walk, London, S.W. 1. Apparently struck by a passing vehicle.

A. A. P.

* * *

CORRESPONDENCE

In my view the common names of birds should, where practicable, be descriptive of their form, plumage, voice, habits, habitat, or distribution, and they should never be named after persons.

In the case of the Queen Alexandra's or Princess of Wales' Parrakeet, a far better name would be the Pink-throated (or even the Racquet-winged), while the Alexandrine (presumably named after Alexander the Great) should be the Greater Indian Ring-necked.

Terms like splendid, beautiful, superb, and so on, should not be used. The Blue-backed Manakin is a better name than the Superb for this member of a family containing many superb birds, while there are plenty of Sunbirds other than those so named that are beautiful, splendid, and superb.

The Many-coloured Parrakeet is well named, but Paradise Parrakeet, Tanager, Whydah, or Shelduck are meaningless. The Elegant Grass Parrakeet is not more elegant than others of the genus, all of which, by the way, are blue-winged.

Names like Festive Amazon, Mercenary Amazon, and Sordid Parrot are unsuitable, but not more absurd than those given to "Amazons" coming from districts as far from the Amazon valley as the West Indies or the forms of "Senegal" Parrot living far from Senegal.

There used to be a story of a London dealer who, finding that trade in Avadavats was poor, advertised them as Tiger Finches, whereupon they sold like hot cakes. If Avadavats bore the slightest resemblance to tigers, he would have been justified in changing this corruption of Ahmadabad.

J. J. YEALLAND.

SPLENDID × TURQUOISINE GRASS PARRAKEET HYBRIDS

In the past Turquoise Grass Parrakeets have bred well for me, and, perhaps due to the climate, Splendids have not done so well. I thought a hybrid between the two might perhaps be more hardy, and in this I may possibly be right, because during the last two seasons I have bred fourteen hybrids—eight in 1952 and six in 1953.

The cock hybrid is very pretty and looks like the cock Splendid, except that the red on the breast is not so extensive and it has the small red patch of the Turquoise on the shoulder. Without the latter it would be difficult to distinguish it from the pure Splendid. Apart from the fact that the blue is not so deep on the face of the hen hybrid she looks exactly like a pure Splendid. This lighter colour is so slight that it might not even be noticed. I tried to breed with two pairs of the hybrids last season, but had only clear eggs. Edward Boosey suggests that they may be fertile in the second year.

Last season I also bred nineteen Bourkes—from two pairs, one Brown's × Mealy, four green Indian Ring-necks and two lutino, two Barraband's, one Crimson-wing, twelve Masked Lovebirds, two Turquoisines, two Elegants, one Barnard's, eight Red-rumps, and one Princess of Wales.

CRAWFORD McCULLAGH.

WHITEABBEY,
BELFAST.

PRINCESS OR QUEEN?

During the course of Mr. Stuart's Exploratory Expedition into Central Australia in 1862 Mr. Frederick G. Waterhouse made an ornithological collection. The Board of Governors of the South Australian Institute forwarded a selection to John Gould for his inspection. Included were specimens of what Gould describes as "a new and very beautiful species of Parrakeet pertaining to the genus *Polyteles*, . . ."

It is perhaps worth recalling Gould's naming of this species. He writes: "The specific appellation I would propose for this novelty is *alexandrae*, in honour of that Princess who, we may reasonably hope, is destined at some future time to be the Queen of these realms and their dependencies, of which Australia is by no means the most inconspicuous" (*P.Z.S.*, 1863, 232). Here Gould does not give a vernacular name, but in his *Handbook to the Birds of Australia*, vol. ii, p. 32 (1865) and his *Birds of*

Australia, Supplement, pt. iv, pl. 62 (1869) he calls it the Princess of Wales' Parrakeet. Who first changed the name to Queen Alexandra's Parrakeet cannot be determined after this lapse of time. Possibly it was almost automatically adopted after the accession. How has this species been called in Australian modern ornithological literature? It would seem that almost every possible variation has been used: E. A. Le Souëf (1915) Princess Alexandra Parrakeet; G. M. Mathews (1916-17) Alexandra Parrot; R.A.O.U Checklist (1926) Princess Parrot; Neville W. Cayley (1938, 1940) Princess Parrakeet and Princess Parrot; Dr. Alan Lendon (1949) Queen Alexandra Parrakeet. And for those who care for none of these there is Rose-throated Parrakeet and Spinifex Parrot for good measure.

A. A. PRESTWICH.

61 CHASE ROAD,
Oakwood, N. 14.

COLOUR CHANGE IN THE BEAKS OF YOUNG DERBYAN PARRAKEETS

I can confirm that the colour changes in the beaks of young Derbyans as described by Mr. Rudkin (*AVIC. MAG.*, Nov.-Dec., 1953, p. 219), the reappearance of the red in young males being first apparent on the lower mandible and gradually spreading over the upper. The change was completed in those I have bred in 15-18 months.

There is, however, a slow and very gradual colour change in plumage which commences earlier than the "beak change", and I have found it possible to determine the sex from this change at a much earlier stage—certainly less than twelve months. In the adult female there is a very distinct pale pink ring round the neck forming a border to the grey hood. This ring is absent in the male at any age, but begins to develop on the young hens with the partial moult, which occurs not long after the birds leave the nest, and is followed by the appearance of a pink suffusion on the upper breast feathers.

The appearance of these changes would, of course, depend to some extent on the general development of the young birds, and would doubtless be delayed if they were backward or ill-nourished.

K. A. NORRIS

ELMSTONE,
HIGHFIELD ROAD,
PURLEY, SURREY.

* * *

REVIEWS

RECORDS OF PARROTS BRED IN CAPTIVITY (ADDITIONS).

By ARTHUR A. PRESTWICH. London, 1954. Price 10s. net.

This volume contains 121 additions to the records already published, largely obtained by the author's careful search through various Australian periodicals, notably *Australian Aviculture* and *Bird World*. As Mr. Prestwich states in his preface, much of interest has come to light as a result of this search, and thus made the Australian records less incomplete. The present volume is a valuable addition to its predecessors, and one that no aviculturist interested in Parrots should be without.

The author makes an appeal for further information, particularly relating to Germany to be embodied in "Further additions", and it is hoped all aviculturists will respond to this request to the best of their ability.

P. B-S.

THE OVERLOADED ARK. By GERALD M. DURRELL. Faber and Faber, Ltd., London, 1953. Price 15s. net.

The collection of wild animals rarely fails to arouse interest, and this account of a six months' collecting trip to the little known British Cameroons will appeal to a wide public. The author's main interest was in mammals and reptiles, but he was accompanied by Mr. J. J. Yealland, whose special concern is birds.

The greater part of the book deals with the capture of mammals in the great rain forests in the neighbourhood of Eshobi, and subsequently with collecting around Bakebe where Mr. Yealland had made his headquarters. The author gives a very entertaining account of his various experiences with native hunters and the trials and disappointments of hand-rearing young animals and keeping alive a very assorted collection with their different food requirements. The rare Angwantibo, *Arctocebus*, the Black-legged Mongoose, and the curious Giant Water Shrew, *Potomogale*, were among the more interesting captures, but many visitors to the London Zoo will find a special appeal in the story of the life and death of Cholmondeley, the famous chimpanzee who, after being brought back from the Cameroons, twice escaped from Regent's Park.

There are relatively few references to birds, but every aviculturist will sympathize with the account of the heavy-footed hen foster parent, who after successfully hatching a brood of Crested Guinea-fowl, equally successfully exterminated them by walking over the young chicks with complete unconcern and a bland expression on her face.

E. H.

DIE UNZERTRENNLICHEN [LOVEBIRDS]. By HELMUT HAMPE. Published by Verlag Gottfried Helene. Pfungstadt/Darmstadt. 1953.

Helmut Hampe was a great aviculturist, and a great authority on Parrakeets, particularly love-birds, or *Agapornis*, and a debt of gratitude is due to Dr. J. Steinbacher for arranging the production of a second edition of this book. Published in 1934, *Die Unzertrennlichen* was immediately in great demand for it was a comprehensive and informative book and became out of print; shortly before the war. As Dr. Steinbacher states in his preface to: he new edition, "Everything that was known about Lovebirds is to be found in that book."

Helmut Hampe was wounded in the first world war, and during the last ten years of his life, before his early death at the age of 42, in 1939, he had to remain in an invalid chair, but despite these drawbacks he carried on his avicultural studies with an ardour and attention to detail that has seldom been surpassed. His articles on his breeding experiments with Red-faced Lovebirds and with Hooded Parrakeets

and on *Brotogetis* Parrakeets published in the AVICULTURAL MAGAZINE in 1939, were outstanding, and the cessation of his valuable studies was a severe loss to aviculture.

Die Unzertrennlichen opens with a chapter of general information about Lovebirds in which the author explains how the Greek word *agapein* = love, combined with *ornis* = bird, was given to these birds by J. O. Selby in 1826, and how this was translated into the vernacular name of *Inséparable* in French, Lovebird in English, and *Unzertrennlich* = Inseparable, in German. A map showing the distribution is included, together with a table of the points of similarity in coloration of the six species and of the four races of *personata*. Detailed descriptions of the birds then follow and the Latin, German, and English names are given, with full information regarding breeding, rearing, and behaviour of the birds in captivity.

In his preface, Dr. Steinbacher deplores the fact that it has not been possible to include all the illustrations which appeared in the original book as these were destroyed during the war, but nevertheless there are a number of most interesting photographs of various species.

Whilst the text is in German, all those who are interested in these attractive birds will wish to possess this book, even without knowing the language, and with a dictionary they will be able to obtain much information of value.

P. B-S.

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- O. H. YOUNG, M.B.E., 58 Goodwood Avenue, Hutton, Essex. Proposed by W. B. Frostick.

NEW MEMBERS

The twenty Candidates for Election, proposed in the March-April, 1954, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

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- Dr. M. A. SHELLIM, to c/o The Eastern Bank, Ltd., 2-3 Crosby Square, London, E.C. 3.
- G. WILSON, to Taormina, 25 Bushmead Road, Eaton Socon, St. Neots, Hunts.

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There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

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THE AVICULTURAL MAGAZINE

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The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

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YELLOW-CHEEKED CONURE.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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JULY-AUGUST, 1954

YELLOW-CHEEKED CONURE

(*Aratinga pertinax chrysophrys*)

By A. A. PRESTWICH (Southgate, England)

Swainson (1837) was the first to describe this Parrakeet and give it full specific status under the name *Conurus chrysophrys*. De Souancé (1856) also recognized it as a species, compared it with the Brown-throated (*aeruginosa*) and the Cactus (*cactorum*) and figured it (1857), giving it the vernacular name "Perruche des Cactus à joues brunes".

Various other authors recognized it, but Salvadori (1891, 1906), owing to limited material, considered there were only four species—*cactorum*, *aeruginosus*, *ocularis*, and *pertinax*—in this group, regarding *chrysophrys* as synonymous with *aeruginosus*. Later (1912), having had an opportunity of examining a large series of specimens, loaned by the Hon. W. Rothschild, he admitted eight species—"C. *cactorum*, from S.E. Brazil, C. *xanthogenius*, from Bonaire, C. *pertinax*, from Curaçao and Saint Thomas, C. *ocularis*, from Panama, C. *aeruginosus*, from British Guiana and Venezuela, C. *arubensis*, from Aruba, C. *tortugensis*, from Tortuga Island, and C. *chrysophrys*, from Colombia."

Peters (1937) has rearranged this group, and recognizes eight forms :—

Aratinga pertinax

<i>ocularis</i>	Brown-eared Conure.
<i>aeruginosa</i>	Brown-throated Conure.
<i>tortugensis</i>	Tortuga Conure.
<i>margaritensis</i>	Margarita Brown-throated Conure.
<i>chrysophrys</i>	Guiana Brown-throated Conure.
<i>arubensis</i>	Aruba Conure.
<i>pertinax</i>	St. Thomas Conure.
<i>xanthogenia</i>	Bonaire Conure.

These eight forms, being sub-species of one species, show considerable variation in plumage, in fact it would be remarkable if there were not intergradation.

Peters gives the habitat of *chrysophrys* as British Guiana, Surinam, and Cayenne, whereas Salvadori gives Colombia. The Colombian bird is, however, the true *aeruginosa*.

Nothing appears to have been written about the life of this Conure in the wild state : and until the recent importations of the so-called " St. Thomas's " it was unknown to English aviculture—at least there are no records of its arrival in this country.

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DIAMOND JUBILEE CELEBRATIONS

1894-1954

The Diamond Jubilee of the Avicultural Society was celebrated by an Avicultural Conference held in London from 17th-19th June, 1954. The meetings were held in the Meeting Room of the Zoological Society of London, Regent's Park, London, N.W. 1, by kind permission of the Council.

In opening the proceedings at 10.30 a.m. on Thursday, 17th June, 1954, the President of the Conference, Miss Phyllis Barclay-Smith, said that the Diamond Jubilee was a most important occasion in the history of the Society. At the time of the 50th Anniversary the only means of marking that important milestone in the Society's history had been by the publication of a Jubilee Supplement of the AVICULTURAL MAGAZINE. In that Supplement it had been stated that in the ordinary course of events the attainment of the Avicultural Society's 50th Anniversary would have been celebrated with due festivity—scientific and social ; it had been the Hon. Secretaries' happy idea to celebrate the 60th Anniversary with the scientific and social activity which had not been possible ten years ago, in the middle of a world war. It was most encouraging that so many members of the Society and guests had travelled, some of them very great distances, from different countries to take part in these celebrations, and they were warmly welcome.

The Avicultural Society was founded in October, 1894, when there were 52 members, to-day they numbered 982, and perhaps at the end

of this Jubilee year they might reach the thousand mark. In the early days of the Society the membership had been chiefly concentrated round Brighton, where the Hon. Secretary, Dr. C. S. Simpson, lived, but now there were members in Africa, Australia, Austria, Belgium, Bermuda, Canada, Ceylon, Denmark, Dutch Guiana, Finland, France, Germany, Holland, Hongkong, Hawaii, Iceland, Italy, India, Japan, New Zealand, Norway, Portugal, Sweden, Sarawak, United States, and the West Indies. Though none of the founder members were still living, she was particularly glad that Mr. Seth-Smith, who joined the Society in December, 1894, and therefore only missed being a founder member by two months, was here to-day. Mr. Seth-Smith had always played a leading part in the affairs of the Society, and rendered great service both to it and to aviculture, particularly during the time when he had edited the *AVICULTURAL MAGAZINE*.

The Society had only had four Presidents, the first the Countess of Bective had been President for one year, she was followed by the Hon. and Rev. Canon Dutton who was President from 1896 to 1920, being succeeded by Mr. H. D. Astley in 1921, who remained in office till 1925. Since 1926 Mr. Alfred Ezra had been President and under his wise guidance the society had grown and prospered—he had been President for nearly thirty years, and the Council had decided that the Diamond Jubilee celebrations would be a suitable occasion on which to present the President with a small token of the esteem and affection in which he was held. Miss Barclay-Smith then presented Mr. Ezra with an illuminated scroll, and read to the meeting the wording upon it :—

“ Presented to Alfred Ezra, O.B.E., President of the Avicultural Society on the occasion of the Diamond Jubilee of the Society by the Members of the Council as a token of their affection and appreciation of his many years of office and notable contributions to Aviculture.”

The scroll, painted by Mr. D. M. Reid-Henry, contained vignettes of Pink-headed Duck, Crowned Crane, Humming Bird, and blue Alexandrine Parrakeet—symbolic of Mr. Ezra's main avicultural interests.

Miss Barclay-Smith formally declared the Conference open, and then gave details of the letters and telegrams of congratulations and good wishes which had been received from members throughout the world, as follows :—

Australia.—Sir Edward Hallstrom, who has been prevented at the last moment from attending ; H. Manfield, Adelaide Zoo ; Ray Murray, H. S. Sewell, and C. Fechner ; L. M. Campbell, Secretary, Avicultural Society of Australia ; Dr. Alan Lendon who wrote,

"I wish the Society had been founded a year earlier, as I should then have had a chance of being present at its Diamond Jubilee. Please give my greetings to all friends attending"; Alex Holmes, Editor *Bird World*: "To visit London is an ambition of most British subjects—London and the Diamond Jubilee of the Avicultural Society would be the greatest experience of a lifetime. I trust that the success of this historic occasion will be a tribute to the organization of your Society."

Belgium.—J. Bruyneel and M. Beulcke, Jean-Pierre Derscheid and Madame Gustav Derscheid, Willy Friling, Leon Lippens.

Ceylon.—Major A. N. Weinman, Zoological Gardens of Ceylon.

Denmark.—Axel Reventlow, Copenhagen Zoo.

Finland.—C. af Enehjelm, Helsingfors Zoo.

France.—R. D. Etchécopar, Secretary-General, Société Ornithologique de France.

Germany.—Dr. W. Windecker, Zoo Gardens, Cologne; Alex Hampe, Horst c. Pohle, and Joseph Rath.

Holland.—Lt.-Col. C. C. Geertsema, Adjutant to Prince Bernhard of the Netherlands; J. H. Noordzij.

Iceland.—Dr. Finnur Gudmundssen.

India.—Shivrajkhachar of Jasdan; Dr. S. C. Law, "My warmest felicitations for the occasion which I hope and pray will prove a grand success"; C. M. Jasawalla.

Italy.—The Marquis Fioravanti, Professor Alessandro Ghigi.

New Zealand.—W. A. Moore, Rowland Hutchinson, "I would like an empty chair kept for our Society."

Norway.—G. A. Gjessing.

Portugal.—Duke of Palmella and Joaquim Simões.

Portuguese East Africa.—E. H. Hawke.

Sarawak.—Alastair Morrison.

South Africa.—J. W. M. Anderson and W. R. Carthew.

U.S.A.—Lee Crandall, General Curator Emeritus, New York Zoo. Society; J. A. Griswold, Philadelphia Zoo; Kenton C. Lint, Zoological Society of San Diego; George P. Vierheller, St. Louis Zoo Park; Professor Carl Naether, "I should like nothing better than the opportunity to mingle with men and women who are very much 'bird-minded' and 'bird-hearted'."

The following papers were then given:—

Mr. David Seth-Smith.

THE FOUNDATION AND EARLY DAYS OF THE AVICULTURAL SOCIETY

"The Avicultural Society may be said to have commenced its life in Brighton in 1894, thanks mainly to two gentlemen, interested in the keeping and breeding of foreign birds, Dr. C. S. Simpson, a medical practitioner, and Mr. Horatio R. Fillmer, a solicitor. But

these were supported by several others. There was Mr. Reginald Phillipps, a retired Civil Servant and very experienced aviculturist, living in London; Dr. Arthur G. Butler, of the Entomological Department of the British Museum, who lived at Beckenham; Mr. J. B. Housden, a retired business man, living at Sydenham; the Hon. and Rev. F. G. Dutton, of Bibury Rectory, and Mr. H. T. T. Camps, the two chief authorities of their day on Parrots. And there was Mr. John Frostick, who most of those present will remember to have met at the great bird shows, and Mr. W. H. St. Quintin, who I shall mention again later. The first President was the Countess of Bective.

Dr. Simpson was Honorary Secretary, and Mr. Fillmer Treasurer, and these two together edited the Magazine. The printers and publishers were Messrs. W. T. Moulton, of Brighton, and they served the Society very well for many years.

It was considered desirable to invent a name to denote 'a person interested in the keeping and breeding of birds'. Such persons had previously been known as 'Bird Fanciers', a term which included those who kept any kind of bird, domestic or otherwise. The term 'Aviculturist' being analogous to 'Horticulturist', seemed to fill the bill, and we read, 'Unless any one will suggest a better name we beg to subscribe ourselves "Aviculturists"'.

There were several societies connected with birds and bird-keeping which existed for the purpose of holding meetings to discuss their problems, but there was also a large number of persons scattered about the country, though too far separated to meet often. It was therefore felt that a magazine managed by experts on the subject who would be prepared to advise members both in print and by means of the post, would be a great help. So it was decided to start the first number of what was to be called the 'AVICULTURAL MAGAZINE', although with a membership of only 52, but the funds for the first year were generously guaranteed by Mr. Fillmer. He wrote that the Society must be self-supporting after October, 1895, and he would not be satisfied until the membership was up to 200.

Queries were answered by what was then the penny post, and the more interesting of these published with the answers in the Magazine.

The object of the Society was the study of Foreign and British Birds; poultry, pigeons, and Canaries being outside its scope. The subscription for the first year was five shillings with an entrance fee of two-and-sixpence, but in 1899 this had to be raised to seven shillings and sixpence, and in 1900 to ten shillings. Even this was cheap enough, considering the Magazine was published every month.

Although the holding of shows was never an object of the Society and not encouraged, reports of the more important of these were regularly published in the Magazine, and very good reports they

generally were, written by such authorities as Reginald Phillipps, H. R. Fillmer, C. S. Simpson, and others.

By the end of its second year the membership had increased to 173, and included such names as J. L. Bonhote, O. E. Cresswell, Rev. C. D. Farrar, Frank Finn, E. G. B. Meade-Waldo and W. Swaysland.

At the end of his second year of Secretaryship, Dr. Simpson found the time occupied by his medical work made it impossible for him to continue and relinquished the post. He had successfully seen the Society through its teething troubles, and now handed it over to his friend and colleague, H. R. Fillmer, who also became Editor of the Magazine. He certainly carried out the work well, and to him must go most of the credit of having made the Society.

Volume III (Nov., 1896-Oct., 1897) was considerably enlarged, the number of members having risen to well over the 200 mark, and four coloured plates from original drawings by F. W. Frohawk were issued. These were hand-coloured, a very usual process in coloured illustrations of birds in those days. And there were two very nice drawings, in monochrome, by H. D. Astley.

From now on the Magazine went ahead, increasing in size with every volume, and the quality of the articles and illustrations was excellent.

In 1899, Mr. Fillmer resigned from his post of Honorary Secretary, for which most at least of the members were very sorry as he had done so much for the Society. He had put forward a plan for the enlargement of the scope of the Magazine by including domestic birds such as canaries, but his proposal met with very strong opposition and no support, which apparently distressed him considerably. Many years later he was made an Honorary Member and Vice-President of the Society.

And now a few words about some of the principal aviculturists of those days, most of whom I could claim as valued friends.

I think the first I met, and it was in November, 1894, was J. B. Housden, who lived in Sydenham. He possessed some large aviaries, and used to breed a number of Australian Crested Doves, a species I was greatly taken with at the time, as well as some of the Australian parrakeets, while in a small aviary in one corner I well remember a very fine pair of Great Eagle-Owls with two young almost as large as themselves. After showing me his birds, Mr. Housden took from his pocket what looked like a small pamphlet which he said he thought would interest me, as it was the first number of a new publication called the AVICULTURAL MAGAZINE, published by a new Society he thought I might like to join. I was much interested, and asked him to propose me as a member, which he did, though I just missed being actually an Original Member.

Housden lived almost outside the gates of the Crystal Palace where, at the great shows held there, he won many prizes for his birds.

Not far from him lived Dr. A. G. Butler, who was on the staff of the Natural History Museum, though in the Entomological Department. His hobby was aviculture, and he kept a fairly large number of foreign birds in cages and loose in a bird room, though later he built a large open-air aviary in his garden. His book, *Foreign Finches in Captivity*, illustrated by Frohawk, is now long out of print, but he wrote several other books and many articles in the Magazine.

Reginald Phillipps, at the time an elderly, white-bearded and charming man, lived in a small house in the Hammersmith district, and it was always a pleasure to visit him and his very charming wife, as he was very keen and knowledgeable on all matters avicultural. He kept a large number of foreign birds, mostly rare species, and was very successful in breeding them. His back garden was not very large, but the whole of it was completely wired over, the garden walls forming the sides of the aviary which was divided into two parts, the further half grown into a dense jungle. The half nearest to the house was connected with one of the rooms, probably originally the drawing-room, now forming the covered part of the aviary. It contained also several cages where new arrivals would rest until considered fit to be let out. Amongst his outstanding successes were the breeding of the Australian Blue Wren and Regent Bower Bird, neither of which had been bred elsewhere in captivity.

Phillipps was a very fruitful contributor to the Magazine, his articles being complete and explicit in every detail. He later took over the Secretaryship of the Society.

On the retirement of Fillmer from the Secretaryship in 1899, the post was taken by J. L. Bonhote, while O. E. Cresswell became Editor. Bonhote when he joined the Society soon after its foundation, was an undergraduate at Cambridge and a student of Professor Alfred Newton from whom he, no doubt, acquired much of his keenness for British birds. He later kept many, especially concentrating upon waterfowl, in the hybridizing of which he obtained much valuable information as to their affinity towards one another. He wrote a very good book on British birds.

O. E. Cresswell, of Morney Cross, Hereford, specialized chiefly in foreign doves and parakeets, though keeping many other birds as well.

E. G. B. Meade-Waldo and W. H. St. Quintin were, I think, cousins, the one living at one time in Hampshire, later at his family seat, Stonewall Park, Edenbridge, the other at Scampston Hall, Yorkshire. Both were excellent all-round naturalists as well as keen aviculturists. Meade-Waldo kept rather unusual birds such as Sand Grouse, Trumpeter Bullfinches, and Teydean Chaffinches, which he had himself captured in his travels in North Africa and the Canary Islands; and he kept also a number of owls of various kinds as well as other predatory birds. He introduced Mandarin Ducks to some

ponds in his woods where they bred and increased as wild birds ; and he was partly responsible for the introduction of the Little Owl, and showed me with much pride a nest of young in an apple tree stump in his orchard.

St. Quintin kept in his park a large collection of rare waterfowl, Great Bustards, and Cranes, as well as, in large aviaries, Ravens, Little Bustards, and Waxwings, while under more protection there were the smaller foreigners, Gouldians, Parrot Finches, and Painted Quails. These two naturalists were fast friends, keeping careful diaries of all country happenings, and exchanging their experiences by almost daily correspondence. I wish their diaries could have been published as they would have been worthy successors to that of Gilbert White.

The Rev. C. D. Farrar was Vicar of Micklegate, in Yorkshire, and possessed a very large garden aviary in which he seems to have bred almost everything he tried, and he managed to winter even the smallest successfully without artificial warmth. He was a prolific writer, but his articles often led to heated controversies, to the distraction of the Editor. When I was Editor later on, I had trouble with Mr. Farrar, and he wrote asking if he might call and see me, to which I readily agreed. From his previous writing one might have thought that this burly Yorkshireman, standing over six feet tall, might be quite dangerous, but, on the contrary, he was as gentle as a lamb and, in fact, quite charming. We parted the best of friends.

Then there was Frank Finn, at that time Deputy Superintendent of the Indian Museum at Calcutta, a man with a great knowledge of birds in general and Indian birds in particular. He wrote several books on birds, and possessed the most remarkable memory. And I must not forget Miss Rosie Alderson, an authority on foreign doves, who helped much in those early days of the Society.

Such is a brief outline of the foundation and early years of the Society. The last years of the nineteenth century. Fifty-four years ago. There were certainly some excellent aviculturists in those years, perhaps more who actually kept birds in any numbers than now, but I think there are probably more now who are interested in birds, even if they are too busy to keep them. In those days the Society held no meetings, not even of the Council, so it was difficult for the members to get to know one another. Now the Society holds regular meetings of Council, and we have the Aviculturists' Club which is a wonderful means of bringing the members together, as well as adding to their numbers."

Mr. E. N. T. Vane.

PARROTS IN ENGLAND TO-DAY

(Illustrated by projected Kodachrome transparencies)

"The Psittacine birds in England to-day still reflect the results of the

ban on importation imposed in 1930. The raising, for nearly a year, of this embargo in 1953, permitted the influx of a number of Asiatic, South American and African species, but very few Australians came in. The least said about the manner in which these birds were imported the better. Thus, apart from these importations, the majority of the birds in our aviaries and zoological collections originate from well established home-bred stock. In all there are at least a hundred and fifty species or more represented, of which I have been able to obtain coloured photographs of a hundred or so and now propose to show you a selection from these.

Following Peters' Classification, of the six Sub-families of Parrots, three can be dealt with instantly, as we have only one representative, namely the KEA of the second Sub-family, the Nestors. The first, the Owl Parrots or Strigopinae are no longer in the country, and the third, the Pygmy Parrots or Micropsittinæ, have never reached our shores alive: I believe the nearest success was by Goodfellow as long ago as 1908. Returning to the Kea, a specimen is exhibited in the London Zoo, and of course, Mr. Sidney Porter, who made avicultural history by breeding these birds in 1947, still has some of them, and I believe is still hopeful of repeating his success. He is most emphatic that these are most intelligent and endearing birds, in spite of all that has been attributed to them.

The Loriinæ, which scientifically should be between the Nestors and the Pygmy Parrots, are mostly only found as single birds, or at least without any real breeding facilities. This picture is of a CHATTERING LORY, but there are also several Purple-capped, Black-capped, Black, Yellow-backed, Violet-necked, and possibly others. Among the Lorikeets are SWAINSON'S and FORSTEN'S, both of which have potentialities as breeders. Also there are Red-collared, Ornate and Scaly-breasted pairs. At Whipsnade is an exhibit labelled Green-naped, but I believe this is really Mitchell's or Edwards's. Well known, too, on the show bench are a pair of rare Musschenbroek's which were once in the Duke of Bedford's collection, but apparently unsatisfactory as breeders.

The next sub-family of Cockatoos is well represented, although few are accorded breeding conditions. The first picture is of a BANKSIAN cock who has a hen in the Parrot House, but no aviary and nest box to try with. There are also examples of the Palm Cockatoo, Funereal or Yellow-tailed Black, and in the Coronation Collection are a pair of Baudin's or White-tailed Black Cockatoos which have only been in this country once before, about forty years ago, and a point should be made to see these birds whilst here.

There are at least two pairs of Gang-Gangs which are regular breeders. I believe Mrs. Clark has two pairs now. There are several Roseates, the picture shows an ALBINO HEN and her normal mate,

taken last year at Woburn. There are also a number of these in the Coronation Collection.

Among the white Cockatoos we have specimens of the **MOLUCCAN**, or **Salmon-crested**, **Triton**, **Blue-eyed**, **Slender-billed**, and **Bare-eyed**; there is at least one true pair of **Great White Cockatoos** belonging to **Pat Maxwell** at **Whipsnade**, but their skill and ability as wire cutters make them a difficult subject to be kept in large breeding quarters. There are many **SULPHUR-CRESTS** of the **Greater**, **Lesser**, and a few of the **Timor** species, but few people can provide the space or a sufficiently strong aviary to permit breeding; some however do. There are quite a few good breeding pairs of **LEADBEATER'S** which is probably the loveliest of them all. During the relaxation of the ban some **Citron-crested** or **Orange-crested** pairs were imported, and efforts are being made to induce these to breed. Of the smaller species we have some **GOFFIN'S** and **DUCORP'S**, but so far as I know none of these are potential breeding pairs.

The prolific **COCKATIEL** has maintained its numbers by being bred in aviaries for generations. Our established stock compared very favourably with the few imported specimens I saw.

Macaws again are large birds which few can accommodate in strong breeding quarters, and most specimens are zoological exhibits, such as the **SCARLET** or **Red and Yellow**, the **GREENWING** or **Red and Blue**, **BLUE AND YELLOW**, **HYACINTHINE**, **LEAR'S**. Attempts are made annually to rear some of these birds, but success is seldom attained; it is peculiar that whenever a large Macaw does succeed, it is nearly always a hybrid youngster. Apart from the birds illustrated, we have specimens also of **Military**, **Severe**, and **Spix**. Among the smaller species there are pairs of **Illiger's** and **NOBLES** which are being given breeding opportunities. My own Nobles have bred every year since their initial effort, and there must be a number of potential breeders about.

The position over **Conures** is rather indefinite. With the exception of **Mrs. Clark's QUEEN OF BAVARIA'S**, breeding stocks as such are still non-existent. A number were imported, but seem to have almost disappeared without gaining any footing. Although there are a number of old specimens still surviving in zoos such as **Blue-crowned**, **Red-masked**, **Black-masked**, etc., a few of the latter were imported along with some **Jendayas**, **Half-moon** or **Golden-crowned**. Then a number of **St. Thomas** were imported which were in fact not the rare species from that island, but the **Yellow-cheeked** from **Guiana**. These have not been bred, but efforts are being made to start them. There are also a few **Cactus** and related species. A few of the delightful little **Pyrrhura** **Conures** were also sent over, and it will be a great misfortune if we cannot establish the **RED-BELLIED** and **WHITE-EARED**. **Mr. Prestwich** has a small nucleus of the former which reared three

young last year, and in my own aviaries last year the latter hatched two young, which died when about five weeks old, and were still rather under-developed. This year they have also been disturbed by uninvited visitors, but they are trying again.

The few Patagonian Conures seem to have been unfortunate, and one definite pair at Whipnade made a neat little hole in the roof of their flight and were never seen or heard of again. Possibly only two or three pairs are left, and so far they have not been reared.

I have no photograph yet of the Lineolated Parrakeet bred last season for the first time by Mr. Prestwich, who now has a small stud of these delightful little birds and hopes to repeat his success.

Three species of Parrotlet were imported, the Blue-wing, GUIANA and the Turquoise-rumped. These birds do not breed readily here, and we have never been able to start strains such as Mr. Enehjelm has done in Finland. A few pairs actually reared families, but there seems little likelihood of strains being firmly founded. The cock illustrated nested twice indoors with a hen in my aviaries, but no young were hatched, and the hen died on eggs before she was turned out into an outdoor flight as originally intended.

The Brotogerys genus came over in quite good numbers, particularly CANARY-WINGS. Odd White-wings and All Green turned up, and one consignment contained four Gold-wings which are probably the first and only importation of these birds into England. Mr. Prestwich is trying out these birds this year.

Pionus Parrots were also among the birds brought over as single specimens, and included Maximilian's, Red-vented, Sordid, but none of them took kindly to captivity, and few are still living. The only record of these birds breeding here is of the White-capped hand-reared by Mr. Yealland some years ago.

Amazon Parrots also arrived, but so far only the BLUE-FRONTED have been bred and a hybrid Blue-front \times Yellow-cheek. Breeding pairs (potential) are at present being kept in Blue-fronts, YELLOW-CHEEK, Cuban and Yellow-fronts. There are several odd specimens of other species kept as pets which might one day be bred from. There are, for instance, several ORANGE-WINGED, Salvins, Sallés, Red-topped, Green-cheeked, Festive, Mealy, to name a few.

Of the delightful little Caiques, pairs of both WHITE-BELLIED and Black-headed came in. Whether these will eventually breed is of course highly speculative, but they are being given the chance to do so, as also are a pair of Hawk-headed.

From Africa we have a number of SENEGAL PARROTS, including one or two of the Red-bellied variety. In the Zoo is a very nice ORANGE-HEADED GOLD COAST PARROT, very similar to Aubrey's Parrot. And Mr. Prestwich has a specimen of the *cryptoxanthus*,

possibly the only one ever imported. The Meyer's and Rüppell's are also represented in zoos.

Although there are many AFRICAN GREYS, probably there are less than a half dozen pairs from which serious attempts are being made to breed. Of course a few Timneh are also here, although their fond owners are possibly quite unaware that it is any different to the hundreds of other Greys.

At Whipsnade, Pat Maxwell has kept the only specimen of PESQUET'S PARROT in good health and condition for nearly two years. Quite a friendly bird if unusual.

There is at least one pair of RED-SIDED ECLECTUS which gained for Mr. Indge the medal last year for being a first breeding. These birds have now changed ownership, but I understand they are still trying to breed again. I was only able to get the hen to pose for me.

The Asiatic Psittacula are well represented, mostly with well established breeding strains in the RINGNECK of which I have only one photo of the normal bird, a hen, here shown with a lutino cock. A better illustration of the LUTINO COCK follows. Then there are the BLUE BIRDS which the late Duke had gone far to establishing. This pair are still immature, being only two years old, but the following illustration is of an ADULT COCK taken last year at Woburn. Here I was also able to get a picture of a YELLOW PLUMHEAD cock, not a lutino, although there is one of these at Keston. There are quite a number of possible breeders, although they are not very reliable regularly in this direction.

My own success with the MOUSTACHE last year has unhappily not been repeated. Experience has proved they are exceedingly prone to pneumonia and the original pair have died. Others are still trying to breed from good pairs, however. There are also a few Alexandrine's and Layard's, and at least one Long-tailed and a hen Malabar. One or two pairs of Derbyans, too.

PRINCESS OF WALES' are well established, and we were able to reinforce our stock with a few imported specimens. Only a few pairs of ROCK PEPLARS and BARRABAND's are still here, but at least some of these breed regularly.

We still have a few pairs of CRIMSON-WINGS, and there are two cocks at least of the TIMOR ISLAND variety, this one is in the Zoo here.

I believe there are only two pairs of the lovely GREEN-WING KINGS* left. One breeds fairly regularly at the Zoo, and our President has a pair: my own died over a year ago of old age. Most of the KINGS are old birds, but again we were able to get a few of these magnificent birds over recently.

* On the visit to Foxwarren on Saturday, 19th June, we were able to see two pairs of Green-wing Kings at the President's Garden Party, one of which had two youngsters on the point of fledging.

There are two of the Malay Blue-rumped Parrots in the country, unfortunately both are males. This bird seldom is imported, and appears to be difficult to acclimatize yet easy to keep once accustomed to captivity.

The Lovebirds ought to be safely established considering the numbers of Fischer's and Masked that were brought in. I wonder if they are. The RED-FACED, of course, has not yet been bred in captivity in spite of near successes. This is a colony of some thirty birds with which Mr. Prestwich is trying to accomplish this difficult task. There are not a lot of PEACH-FACED, but several pairs are now rearing regularly. Several FISCHER's have been bred, but not as many as should have been, when one considers the numbers that came in. The same remark applies to MASKED, and we now have quite a few of the BLUE variety, although these do not appear to relish this climate, and who can blame them after this year's effort at summer. The Duke had a few NYASAS, including a LUTINO cock. Only green birds have been reared so far here, but we are still trying. A few Abyssinian pairs exist, there are no Madagascars or Black-cheek. Swindern's have never been imported.

The Hanging Parrots are not very popular as aviary subjects. The Vernal came in in quite considerable numbers, but were not good sellers, and the dealers soon dropped them, besides which they are not likely to breed. The lovely little BLUE-CROWNED also reached us, but only cocks.

This brings us to the Australian Broadtails, which have been well established as home bred stock for many years. Fresh blood has been acquired recently, and we have pretty good stocks. Unfortunately, when the ban was lifted, I concentrated on the rarer species, and disposed of many of my old Rosellas, now difficult to replace with birds of the same reliable standard. However, we have several fine PENNANT's, GOLDEN-MANTLES, STANLEY's, and MEALIES. BROWN's are rare, and seldom reliable breeders. There are also one or two pairs of Bauer's and several good Barnard's.

The Red-capped or Pileated Parrot, called Western King in Australia, seems to be on the way to developing a strain at Keston, one pair having reared almost twenty young. Others are now trying their hand with this lovely bird.

Blue-bonnets are almost non-existent now. I had a pair of YELLOW-VENTED, but the hen died soon after importation, and these two NARETHAS from the Duke's collection are both hens and probably the only ones ever imported.

The RED-RUMPS are pretty well established, and many good birds are reared annually. The yellow variety does not seem to be doing so well lately. MANY-COLOURS breed fairly well here, and again their

blood has been reinforced. There is a pair of HOODED, but unfortunately they are not together.

Of the Grass Parrakeets, BOURKES have been well established for years. These also have had a few newly imported specimens. ELEGANTS are also well established with a limited number of breeders. TURQUOISINES have been re-established, and given reasonable good fortune these should be on the increase soon. The same applies to Splendids, although I would like to see more of these birds in the country, as our stocks are exceedingly low.

That I think records the position of the Parrot-like birds in England to-day, and it goes without saying that the Budgerigar, the last of the family to be mentioned, will most probably manage to hold its own as an aviary bred species!"

(Note.—Colour transparencies were shown of all species given in capitals.)

The meeting then adjourned for lunch and reassembled at 2 p.m.

Mr. Peter Scott (Hon. Director of the Wildfowl Trust).

THE NE-NE OR HAWAIIAN GOOSE

(Illustrated by colour film)

"At the invitation of the Board of Commissioners of Agriculture and Forestry of the Territory of Hawaii, the Wildfowl Trust agreed to take an active part in the attempt to save the Ne-ne or Hawaiian Goose, *Branta sandvicensis*, from imminent extinction. In 1951, only thirty-two individuals were known to be surviving. Up to this time the Hawaiian Goose in the wild state had occurred, so far as is known, only on the island of Hawaii, with the exception of a few isolated records on neighbouring islands. Less than a century ago 25,000 of these birds are believed to have existed, and the diminution is thought to be due to several causes, besides their destruction by the islanders for food, during the flightless moulting period. In addition to feral cats, dogs, and pigs, the mongoose, which was introduced to kill the rats that were damaging the sugar cane, helped to decrease the numbers of all ground nesting birds by destroying nests, eggs, and young. The few remaining geese which are still in the wild state have been seen on the slopes of the 13,700 feet volcano Mauna Loa and its neighbour Hualalai. These lava slopes are in general character a kind of moorland—moss and lichen covered rocks, a few trees, various grasses and other plants, some of them bearing berries which are eaten by the geese, a favourite being the Ohelo—*Vaccinium reticulatum*. Here and there the lava is impervious enough to hold water, so that there are some shallow pools, but no large areas of water.

In 1950 the Trust sent its Curator, Mr. John Yealland, to Hawaii in order to advise and assist in the establishment of a breeding station for propagating Ne-nes at Pohakuloa in Hawaii. Mr. Yealland



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[D. Farrell

NĒ-NĒ OR HAWAIIAN GEESE.

[To face p. 114.

successfully raised a brood. On his return to England he brought a couple of Ne-nes as a gift from Mr. Herbert Shipman, of Hilo, to whose interest the species owes its existence to-day. Both of these laid eggs in March, 1951. A gander was at once flown from Hawaii, and during the breeding season of 1952, nine young Ne-ne goslings hatched, all of which survived. In the same year three were raised at Pohakuloa, and the total number of birds known to exist was forty-six. In 1953 a further four goslings hatched at Slimbridge, and were successfully reared. This year, 1954, five goslings hatched, but only four have survived. Unfortunately one adult died, and two young birds which were lent to another breeder were poisoned by a disastrous accident, so the present total at the Wildfowl Trust is seventeen, a quarter of the world population of these birds, which is at present believed to be sixty-eight.

THE HIGH ANDES

(Illustrated by colour film)

Early in 1953, my wife and I made an ornithological expedition to South America. The first part of it was spent in the extreme south of Chile and the Argentine—the southern tip of Patagonia, and the island of Tierra del Fuego. The second half was spent on the Andean Plateau of Bolivia, not far south of the equator. Before leaving Buenos Aires we were able, in the nearby marshes, to study and film that obscure but interesting bird the Black-headed Duck, *Heteronetta atricapilla*, which is parasitic, laying its eggs in the nests of Coots, Night Herons, and Ibises. From Argentina we flew up into Bolivia, whose capital La Paz is 13,000 feet above sea-level, and from here we went by rail past the famous pre-Inca ruins of Tiahuanaco, to the port of Guaqui on Lake Titicaca.

The bird life of this lake is especially rich and interesting, because many of the forms are confined to the *puna* district or *altiplano*, although closely related to lowland species. These subspecies tend to be larger than their counterparts. The commonest ducks on the lake are the Puna Teal, the Sharp-winged Teal, and the Peruvian Stiff-tail. We also saw the Giant Coot, many Grebes, Cormorants, Night Herons, and waders, including Wilson's Phalarope on migration from North America. Some of the ducks were moulting and flightless, and we were able to catch a small number of Puna Teal and Sharpwings from a boat by dipping them out of the clear water with a home-made net when they dived. These birds are now established in the Trust's enclosures in Gloucestershire, and the Sharpwings have nested.

The main objective of this journey in Bolivia, however, was to see the beautiful Torrent Duck, *Merganetta armata*, which lives in the waterfalls of the Andean streams. For this purpose we travelled over a high pass near the great mountain Huaina Potosi (where on

a lake at 16,000 feet we saw a flock of Andean Geese), and down into the Valley of the Zongo, which finally drains into the Amazon. This valley is accessible because of a hydro-electric scheme, and it was in the River Zongo that we finally came upon a group of five Bolivian Torrent Ducks, *M. armata garleppi*. Although they could not be filmed at very close range, their behaviour was carefully studied, and hitherto unrecorded details of display and voice were noted. The films show the swimming capacities of these birds in the white water of the torrents, and some features of the display. They are believed to be the first colour films ever taken of this little known and fascinating bird."

Mr. Walter Van den bergh (Director, La Société Royale de Zoologie d'Anvers).

BIRD PROTECTION IN BELGIUM

(Illustrated by films)

"In this very short lecture I intend to give you a general idea of how Bird Protection has developed in Belgium in the last few years.

But allow me first of all to thank you for your kind invitation to address the Avicultural Society on the occasion of its Diamond Jubilee. Please do not consider it as a mere complimentary phrase, when I tell you that your invitation made me feel very much flattered.

I am glad to be here among friends who are in full support of an ideal, for which we still have to fight the first battle in my country. The celebration by your Avicultural Society of an imposing Diamond Jubilee proves that the subject of Bird Protection is not new in Britain. In Belgium it is only a growing idea and a very topical question at this very moment. This is the reason why I have chosen 'Bird Protection in Belgium' as subject for the speech I was asked to deliver here.

On Sunday, 13th July, just a few days ago, the 'Belgian Society for Bird Sanctuaries' inaugurated its very first bird sanctuary. This took place with a certain solemnity in the presence of representatives of several Ministers, the Lord-Lieutenant, many prominent people, and an attendance of more than one thousand enthusiasts.

This was the second year that the 'Union of Societies for Nature Conservation' succeeded in organizing what we call 'The National Nature Conservation Day', and we were glad to be able to offer the public a new nature reserve rather than words and speeches.

Members of the Press and of broadcast and the film journals were present, and have helped enormously in the promotion of nature reserves all over the country.

An intensive propaganda campaign has been launched during these last months. We cherish the hope that this will improve public opinion and will result in a better protection of nature, a protection of the animal habitats, and an increase of bird sanctuaries.

I expect you are wondering at the excitement in Belgium over so simple a thing as the very first small bird sanctuary, purchased by a Society.

I have a map of Britain, nicely dotted to mark the numerous and well managed bird sanctuaries, and I know we are shamefully behind in Belgium. This explains the stir over the event.

The idea of 'bird protection' has been successfully realized in your country for many years, and whenever a new bird sanctuary is added to your long list, it is quite a normal thing, a familiar event of little account !

However, conditions are quite different in Belgium, and it may be of some interest to you to sketch in rough outline the struggle for nature conservation in Belgium. First I will try to show you what the situation was three years ago, when the Belgian Society for Bird Sanctuaries was founded ; next I will do my best to give you an idea of the present state of affairs and a glimpse of our prospects for the near future.

There has always been a great number of ornithologists all over Belgium : amateurs, bird watchers, semi-scientific workers, reporting upon migration and nesting, and ringing birds. Some of them co-operated with the Royal Institute of Natural History, others with our bird journals, *De Wielewaal* and *Le Gerfaut*, two publications that are evidence of their enthusiasm. There were also a considerable number of unambitious individual bird-watchers for whom wild bird life was just a thing of interest and who never decided to tackle a special problem.

These ornithologists recorded a steady decrease in both number and variety of many Belgian birds, and noticed the disappearance of several species from our country. They constantly called public attention to the urgent necessity of improving the actual Bird Protection Acts, and of supporting the conservation of wild animals and plants by protecting the very last natural wood-, marsh-, moor-, and coastland in our overpopulated land.

On the other hand, bird-catching has always been a deplorable hobby of the lower classes in Belgium, and too many politicians, who stick to their mandate, are afraid of alienating their electors by voting any new Bird Protection Bill.

Not one of our successive governments ever made a serious attempt to vote any funds for nature conservation nor for the protection of wild plants and animals in their natural habitat, and owners of natural landscapes can still spoil them as much as they like, for there is no act to put a stop to such vandalism.

In the meantime private societies for the protection of nature and monuments were created, and did their utmost to call attention to the urgent necessity for action, but they were voices crying in the

wilderness. Local authorities and ministers pretended to listen kindly and attentively, promised to do their utmost, but never took any action. The government never considered the purchase of nature reserves.

Eventually these societies came to the conclusion that there remained only one, but rather expensive, solution : to try to collect the money and purchase the menaced natural landscapes !

These societies for protection of nature deserve our warmest gratitude. Their sphere of action, however, is very large, and moreover they are so much pressed for money that they have had to limit their activities. They really did their very best to promote nature protection, but it only resulted in unsuccessful protests in the papers and in government circles.

The International Congress of Ornithology of 1950, in Upsala, indirectly brought a change for the better in this sad situation. Those Belgian ornithologists present suggested the foundation of a special society for the protection of nature, which would concentrate all activities on bird protection.

Architect Jan Jacobs actively pushed on the work, and he was assisted by Léon Lippens, an all-round experienced man, a first-rate ornithologist and a man whose voice carries weight. In 1951 the 'Belgian Society for Bird Sanctuaries' was founded. Through the kind offices of Dr. René Verheyen, the Society was invited by Dr. Van Straelen, president of the National Parks in the Belgian Congo, to establish the seat of the young society under the same roof.

This brought a sudden rise in prestige. A few weeks later, H.M. Queen Elisabeth of Belgium granted her high protection to the Society. Her Majesty invited Dr. Koch, who is well known in Britain, to make gramophone records of the bird-song in the Royal Park of Laeken, near Brussels. A copy of this beautiful collection of records, accompanied by a well illustrated handbook, has been sent by Her Majesty to many schools, and the remaining records are sold for the profit of a charitable institution.

So the new society started with good prospects and high hopes. It may be of some interest to relate the experience gained since 1951 and the results obtained.

Three years ago the Society still laboured under the delusion that a nice pamphlet could do wonders, that it would be able to draw government attention upon the shameful state of affairs, that print could awake public opinion, and that automatically thousands of enthusiasts would join and pay a small contribution to defray the costs of administration.

The pamphlet looked nice. It was a cry of alarm from end to end, and especially drew attention to the fact :—
—that in the moorlands : Ruff, Tawny Pipit, Black Grouse, Curlew, and Bar-tailed Godwit were getting very rare ;

—that in the polderlands, along the low rivers : Black-winged Stilt, Avocet, and Oyster-catcher were becoming scarce ;
—that in the marshes : the Bittern, and the Little Bittern were in danger ;
—and that along the sea shore : Plovers and Little Terns had already disappeared.

Twenty thousand of these pamphlets were distributed throughout the country in 1951. They were sent to friends, teachers, doctors, lawyers, readers of ornithological journals, etc. The result was disheartening. Public opinion was not ripe, and the total amount of subscriptions collected hardly paid the expenses of printing and postal charges !

In the meantime we grew aware of the fact that the little group of active members did not increase. Six people had to carry the load, and among the members not even a seventh bird-lover could be found to spare time to help the Society by practical co-operation.

At this very critical moment the Society by chance secured the valuable help of Mr. Herberigs, a very active ornithologist, who is at present the delegate of the Society. He was not afraid of paying an endless number of annoying visits to people all over the country who might possibly join. These interviews proved to be a success, and in 1952 a change to another method of collecting subscriptions was made. Instead of trying to gain a vast number of ordinary members, efforts were concentrated upon securing an increase of protecting members, who pay annually 1,000 F. and up.

This new method succeeded wonderfully with the help of Mr. Herberigs' persuasive power, and soon a considerable number of protecting members joined.

About that time circumstances were such as to be favourable to the idea of nature reserves ; one of those psychological moments which are very difficult to explain, but which could be expected just then, as the papers had done their very utmost to support and push the idea. The leading part was taken in the country by the ' Friends of the River Ourthe ' who tried to prevent the construction of a barrage, that would spoil the most beautiful valley of the Ardennes (a battle, which I regret to say, they lost !)—by ' The Friends of the Forêt de Soignes, south of Brussels, through which the government planned to build an autostrade or main motor-road—by Mr. Léon Lippens, who drew the attention upon the beautiful coastal area ' Het Zwin ' after the inundation of 1953—and by the ' Society for the Protection of Nature and Historical Monuments ' which supported the conservation of a large moorland north of Antwerp.

The stream of preservation propaganda was given enough force to arouse public opinion from apathy, and in two years the Belgian

public became interested in the question as a result of all the publicity that had been given.

I do not know how politicians behave in Britain, but the leaders of the people in Belgium often prefer to follow the track of their voters instead of guiding them. But as things are at present, politicians can no longer ignore such ideas as protection of nature and bird sanctuaries. There is good hope that they will soon show their voters that they are still following the crowd, and that they will prove to the government that they can keep abreast with general opinion.

All this contributed to create a favourable atmosphere in 1953 for the activity of the Belgian Society for Bird Sanctuaries. About that time a marshland called 'Snepkensvijver', beautifully situated along a main road, was going to be parcelled out for building summer houses. This splendid natural breeding place for many birds would disappear for ever, and once again the authorities did not move.

The Society forced the issue. Within a few weeks, 1,000,000 F. (about £7,150) was collected by means of a very few subscriptions, ranging between 1,000 and 100,000 F. This put the Society in a position to buy the land, and so become owner of its first bird sanctuary.

We still very much regret that the new Bird Protection Bill to restrict bird catching, which was brought in by the three political parties, was rejected in 1952. If the same bill had been introduced a few years later, the same assembly would certainly have voted for it, because public opinion is at present much more in favour of the question.

The actual problem of bird protection in Belgium can be summarized as follows :—

During the last two years a successful attempt has been made to influence and educate public opinion about nature preservation and the protection of wild animals. The population now expects some practical results.

The Belgian Society for Bird Sanctuaries by chance started its activities at the right moment. In three years 800 members joined the Society, and the total annual contributions amount to 200,000 F. (more than £1,300).

The first bird sanctuary in Belgium was 'De Zegge', a marshland of 35 Ha. The Royal Zoological Society of Antwerp purchased the land for the purpose of establishing it as a bird sanctuary, and acted in close co-operation with the Belgian Society for Bird Sanctuaries, which manages this natural reserve.

Thanks to the zeal of Mr. Léon Lippens, who collected nearly all the money, the Belgian Society for Bird Sanctuaries was able to purchase 'Snepkensvijver', a marshland of 50 acres.

About sixty private estates have been declared as bird sanctuaries, and the owners co-operate fully with the Society.

All these quick and rather spectacular successes, however, do not produce the results that ornithologists might expect. The sanctuaries are badly managed, and there is still a serious lack of supervision, and too few investigations are made. This is because the number of our members, who really do co-operate and take an interest in practical field work is far too small.

It therefore has been decided to put a stop to declaring new estates as bird sanctuaries, till we shall have a larger staff of trained co-operators.

The actual private bird sanctuaries are still badly organized, but we want to follow the British example, and hope to be able to attack the problem squarely and well. We started with the protection of nesting areas of rare species, and we are advising landowners and training gamekeepers; we give information to bird watchers on useful subjects for research and investigation, and publish an annual Bulletin, etc.

I fear the very short film I am going to show you will not come up to your expectations. It has all been done in a hurry. We even had no time to complete the film with some pictures of real interest to ornithologists. This year spring was very late in Belgium, as was perhaps the case in Britain too. We had to wait till last week to film a few interesting nests, and I regret to say that the copies arrived too late to be inserted in this film. A film which claims to be about bird protection ought at least to show some rare nesting breeding birds, and I offer my apologies.

Please remember too, that we were pressed to produce a film on bird protection for the Belgian public. We know that our own people are critical on the subject of films, and we would rather show them high standard films, but as these require much time and money, we think it is better policy in Belgium at the moment to produce something that is not perfect, rather than nothing at all.

We must go on beating the drum every day, even when there is a hole in the drum and the drumsticks are broken. It is the big push that people expect now.

This method would not be suitable for Britain, so please try to understand this, and excuse the gaps in the film."

Mr. Van den bergh then showed the film which included pictures of the bird sanctuary "De Zegge", a marsh owned by the Royal Zoological Society of Antwerp, in winter. The water was quite overgrown with vegetation, and the film showed how some open water was obtained and so the territory made more suitable for water-birds.

Nest-boxes were made in schools, and the boys offered them in May to the Director of the County Park, which was declared a bird sanctuary.

Some pictures of the bird sanctuary "Snepkensvijver" which

was purchased by the Belgian Society for Bird Sanctuaries, were taken in winter, others in spring. Attempts were successfully made here to improve the conditions for the very large breeding population of birds in this rather small area. More than one thousand Black-headed Gulls are breeding here this year. The white cloud of birds circling over their breeding-place is a very impressive sight. Besides this great number of breeding gulls, forty-eight other species of birds were breeding in the same habitat, and Mr. Van den bergh said he regretted that he could not show some of them. The Bittern and its nest was filmed, but this was not ready in time to be included.

Mr. Van den bergh then said :—

“From all this we may conclude, that Bird Protection in Belgium has not passed its teething troubles.

The first obstacles, and most heavy ones, have been removed.

New members join every day.

No doubt, many of them will grow to active co-operators, who will turn bird protection into a reality.

Britain showed the way. We follow in her footsteps.”

The meeting adjourned at 4 p.m. for tea in the Library of the Zoological Society, and later a sherry party was given by the Editor of the AVICULTURAL MAGAZINE, Miss Barclay-Smith, at her house.

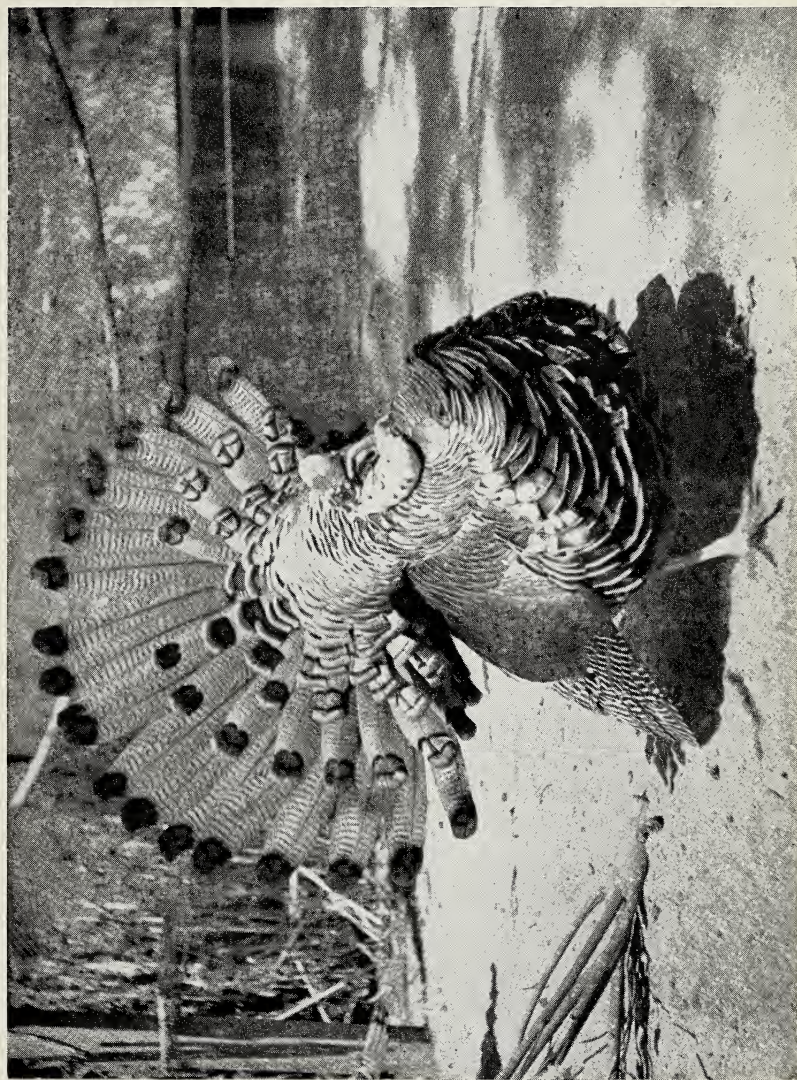
The meetings were resumed on Friday morning, 18th June, at 10.30 a.m., when *Mr. G. T. Iles*, Superintendent, Belle Vue (Manchester) Zoological Gardens, showed a colour film entitled “Fine Feathers”. Mr. Iles gave a running commentary as he showed his film, which depicted beautifully plumaged birds in the Belle Vue Zoo, with other bird scenes from Clères and Vincennes. The film ended with a sequence in lighter vein, which showed the various ways in which feathers are utilized, beginning with the wonderful head-dress of the Red Indian.

The following papers were then contributed, illustrated with lantern slides :—

Mrs. Belle Benchley.

BREEDING THE OCELLATED TURKEY AT THE SAN DIEGO ZOO

“In 1946 several of the American Zoos joined in an effort to obtain breeding stock of the rare Ocellated Turkey of Central America by contributing funds to pay the expenses of a collector of experience. Each Zoo was to receive for the contribution at least one pair of the turkeys, if any were obtained. The collector, an experienced breeder of waterfowl and gallinaceous birds, reached the United States the

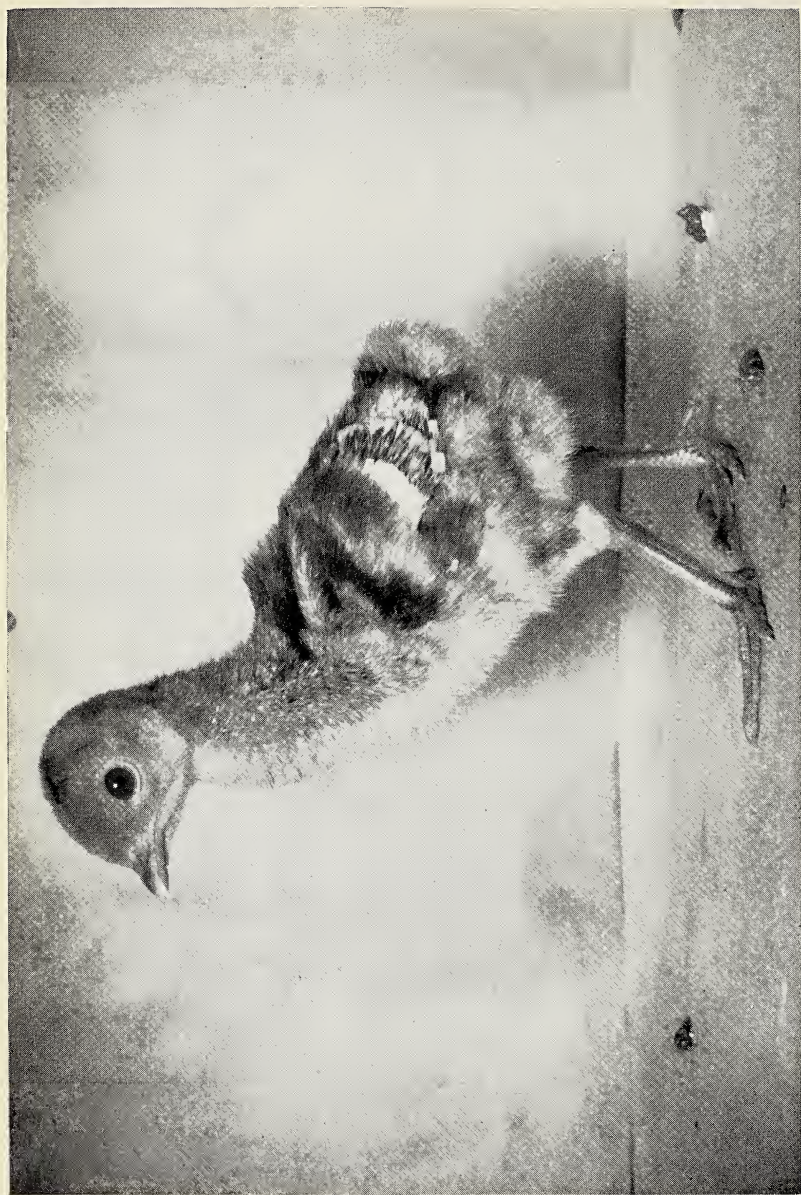


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OCCELLATED TURKEY.

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OCCELLATED TURKEY—FOURTEEN DAYS OLD.

following winter with a fine collection of birds, providing two birds to each of five Zoos, with a gratifying number for his share in the project.

When the pair reached the San Diego Zoo we were dismayed to see that the cock bird, though in fine immature plumage, had a badly swollen knee joint, already stiff, which would be likely to prevent breeding.

The hen matured more rapidly than the male and during the first summer, after only about six months in the Zoo, laid forty-seven eggs. There had been no sign of mating nor mating display on the part of the cock, and although we felt sure the eggs were infertile they were tried both under hens and in the incubator without results. In the following spring the male bird assumed complete nuptial plumage and daily performed one of the most spectacular mating displays we have ever seen among our large collection of such birds. No actual mating took place so far as we could observe but we again tried to incubate the eggs with hens, the incubator, and the Ocellated Turkey herself. Again all of the eggs were clear.

We therefore decided that we would call upon the Poultry Department of the University of California for assistance in using artificial insemination. Dr. Arthur Kelly, Veterinarian of our Zoological Garden, contacted Dr. V. S. Asmundson, of the College of Agriculture, who eagerly agreed to assist us during the next breeding season. He instructed us to try to incubate the first few eggs of the following season and if they showed clear after the required number of hours to call him or Dr. Frederick W. Lorenz, and he would do the work at the University and the latter would fly down immediately to do the actual insemination.

As we anticipated, the first few eggs were infertile, in spite of the vigorous and beautiful display of the cock, and Dr. Lorenz was contacted. The next morning he inseminated the hen with no apparent shock to either bird. And as the result of this and a later insemination, seventeen young Ocellated poults were hatched and raised. Due to several cold spells several young of the first two broods were lost. Small Red Jungle Fowl hens, which are excellent mothers for any wild pheasants and other fowl, were used as foster parents, but some of the young turkeys were brooder raised. Their diet consists largely of protein, and green stuff and insects actually made up the large part of their food.

Artificial insemination was used again the following year. However, the third spring several of the young hens and the original hen mated naturally with the two-year-old cocks and a fine large group of these magnificent birds resulted. Although the original hen has mated successfully with our young cocks, we felt it was wise to maintain the original wild strain and so we have resorted to artificial insemination

during the last two years because the original pair are still productive.

We have been able to place a number of the birds in American and European Zoos as well as the Agricultural Department of the University of California. We feel especially hopeful of saving this rare bird, by placing any large surplus of these birds in the collections of some of the most successful game bird breeders of California and south-western United States where they are removed from the public contacts and other difficulties which face those who maintain public exhibits.

I am happy to report that those we sent to European collections, especially at Clères and Rotterdam, are doing well and promise to provide specimens for European Zoos and breeders, and we feel that we have been more than justified in resorting to the expediency of artificial insemination in our efforts to insure the continuance of this magnificent bird, at least in captivity."

Mrs. Benchley showed slides of the adult birds, the egg, chick just hatching, and a series of the chick at 4 days, 14 days, and 28 days old respectively.

Mr. Kenton Lint, Curator of Birds, Zoological Society of San Diego, wrote a full account of the successful breeding of the Ocellated Turkeys in Captivity, which appeared in *Bulletin* No. 27 of that Society. His paper contained the following summary in tabulated form of the experiences at San Diego Zoological Garden from four successive successful years, the first two of which depended entirely upon artificial insemination, the last two being the recordings of the success with only natural matings from two year old, zoo bred cocks.

SUMMARY

1. The Zoological Society of San Diego has hatched and raised the first Ocellated Turkeys of Guatemala, Yucatán, and British Honduras, by use of artificial insemination in the United States.

2. On May 21st, 1948, the first insemination was made by Dr. Frederick W. Lorenz, Poultry Husbandry Division, University of California, Davis, California.

3. Fourteen fertile eggs resulted between May 21st-June 4th, 1948.

4. The first Ocellated Turkey poults were hatched June 20th, 1948, and fourteen poults were subsequently hatched.

5. The period of incubation was twenty-eight days.

6. The eggs are similar to the domestic turkey egg with larger spots.

7. The average egg weighed 47.19 grams and measured 60.76 × 44.2 mm.

8. The Ocellated Turkey hen at the San Diego Zoo laid thirty-seven eggs during the nesting season in 1948.

9. Five Ocellated Turkeys were raised to maturity in 1948.

10. On May 13th, 1949, the insemination was made by Dr. Lorenz for the second year with the original pair.

11. Twenty-nine eggs were laid between May 12th-June 12th, 1949. Sixteen Ocellated Turkeys were raised to maturity in 1949.

12. In 1950, nine Ocellated Turkeys were raised through natural matings from second generation zoo-bred males.

13. Eleven Ocellated Turkeys were raised to maturity in 1951, without the use of artificial insemination.

14. Forty-one Ocellated Turkeys have been hatched and raised by the Zoological Society of San Diego in four years.

15. May has been the breeding month for Ocellated Turkeys in San Diego.

16. Eggs are incubated at the temperature of 99° F.-100° F., for the first three weeks, and 101° F. for the fourth week, with a humidity of 87-88 per cent.

17. During the first four weeks the poults lived exclusively on insect food, chiefly cockroaches and mealworms.

18. At five weeks poults began eating turkey starting mash, canary seed, millet seed, greens, bread crumbs, egg yolk, and insects.

19. Adult Ocellated Turkeys are fed green oat pellets, canary seed, millet seed, milo maize, bread, egg yolk, every form of greens, and ground meat. Oyster shell is added during the breeding season.

The official bulletin of the Zoological Society setting forth these facts is available on writing to the Zoological Society of San Diego for the Bulletin No. 27, by Kenton C. Lint. For information on artificial insemination application should be made directly to the University of California, College of Agriculture, Division of Animal Husbandry, at Davis, California, U.S.A., attention of Dr. Frederick W. Lorenz.

CONTROLLED BREEDING OF ANDEAN CONDORS

"Breeding of the Andean Condor has occurred in several instances in Zoos displaying a mature pair. Therefore, the story of mating them at the San Diego Zoo is of importance only because of our experiments in increasing the breeding rate of these magnificent birds. These experiments have been carried on during a ten-year period with the hope that if we succeeded in fulfilling our calculations we might be able to change the dismal and hopeless destiny of a bird dear to the heart of every "Californian", the California Condor. Unfortunately, a pair of these birds has never been housed in any Zoo, all those in captivity most unfortunately having been females.

The breeding pattern of both species of Condor is one young bird at two-year intervals, for a yearling bird is still dependent upon the parents for food and protection, due to slow physical development. In addition to this is a discouraging rate of reproduction, for the

Andean Condor requires eight years to reach productive age, and while it has not positively been established, it is agreed by most authorities that it is the same with the California Condor. Practical conservationists have established that the likelihood of survival of rare species depends greatly upon very definite facts in the pattern of reproduction. First, the balance between the sexes in existing specimens and their mating pattern, whether monogamous or polygamous ; second, an important feature is the age at which they reach productive maturity ; third, the number of offspring produced annually and fourth, length of intervals between breeding periods. On each of these the California Condor, like its next of kin the Andean bird, has a poor success ratio. The breeding age is accepted as seven or eight years. The California birds have no identifying sex marks. Therefore, the ratio between sexes is completely unknown, and the number of known breeding pairs among the estimated number of birds is ridiculously low. Finally, the breeding speed is one egg laid at intervals of two years. This stimulated our interest in making a systematic study of the Andean Condors breeding in a huge flying cage among a mixed group of eagles, kites, and small vultures.

The first egg laid, after a rather long and very spectacular courting display, was misshapen and rough and was broken by the hen about the sixth day. But fortunately she laid another within a few months. From this there hatched out a fine, sooty-coloured chick, which could be sexed the day it was hatched because of the small comb which is present only in the male of this species.

The baby developed very slowly. Feeding and other forms of care were shared by the parents, as the incubation had been. The baby did not emerge from the nest until it had grown to be almost as large as its parents, though still somewhat shaggy and a dull dark grey instead of the shiny black of the adult. The care of the young bird continued until it was a year old. A normal mating season was skipped. In fact, it demanded attention until well into the second year, as it did not fly, but used its wings only to aid it in hopping about the imitation cliffs and ledges of its huge cage. The spring before it was two years old, however, the parents began their mating display, and on almost the same day as before the egg was deposited and the second incubation period ensued. The Zoo decided that we could afford to make an experimental study of this second bird, feeling sure that our pair of Condors would not be disturbed by our activities. And so, when the bird was ten months old it was removed from the cage. At first he sulked, but soon began to eat greedily whatever food he was offered.

The pair of adult birds, relieved of its care, almost at once began their mating display and laid an egg in due time which, upon hatching, turned out to be a female. The parents raised this second baby.

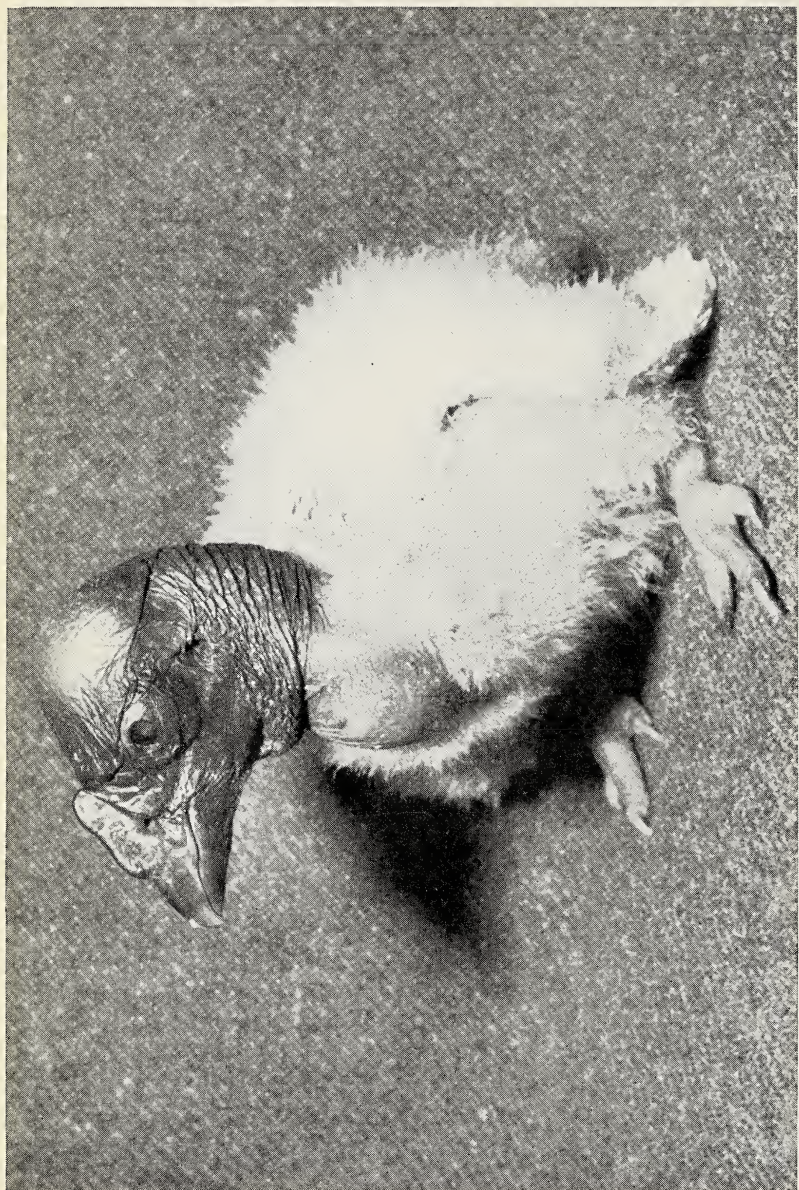


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[Photograph : Zoological Society of San Diego

ANDEAN CONDOR.

[To face p. 126.



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[Photograph : Zoological Society of San Diego

ANDEAN CONDOR.

[To face p. 127.

We had doubled normal production of Condors by raising two in two years. However, we felt that perhaps even greater speed in raising Condors might be necessary, for more and more discouraging reports regarding California Condor scarcity were brought to the Zoo by men actively concerned with wildlife preservation. Therefore, when the Condors laid their first egg in the following May, we took the egg away to be hatched in the incubator. In about thirty days after the first egg was laid, a second egg was deposited in the nest. This we left with the parents for incubation. Both eggs hatched and we raised two Andean Condors in one year, one without any aid from the parents.

The hand-feeding of a baby bird of prey, normally fed by regurgitation, is difficult, requiring much time, study, and real imagination, but we felt a good deal of pride in having produced four young which normally would have been the product of four pairs of birds in two years under normal wild conditions.

When we were able to repeat this performance for one more year we made no further efforts and the pair returned to their normal breeding pattern.

We wrote to the authorities in charge of wildlife in California, setting forth the results of our experiments with the Andean Condors, and calling to their attention that the few breeding California Condors in a sanctuary surrounded by thickly populated areas had little chance of survival through the mere setting aside of a proscribed area in which the birds could nest without interference of man.

We offered to turn our enormous cage over to the project of increasing the numbers of the California Condors. We did not ask for a permit to trap, but offered to take and care for any Condors the State could furnish. This came before the Fish and Game Commission, a non-political body concerned with such projects, and they told us they would prefer to give us a permit to trap a pair of Condors. Immediately, to our amazement, those organizations supposed to be concerned with preservation of wildlife, while admitting that the birds apparently were decreasing under their programme, violently opposed this permit or the caging of any Condors, and refused any request even for us to enter the sanctuary which had been set up in the area of the five or six known pairs of nesting Condors.

In spite of this opposition we asked for and received the permit to trap a pair of Condors outside the sanctuary any time except during the mating season. Opposition continued from these organized groups, but during several months in which our permit was in existence, weather conditions and scarcity of birds in areas to which we could have access prevented successful trapping. Finally, the Audubon Society which has for its object preservation of wild birds, brought enough political pressure upon the State Legislature to

squeeze through, during the closing hours of the session, a bill cancelling all permits to capture California Condors, and so we and those who share our desire to find a solution to the problem of real wildlife preservation, were stopped without any opportunity to make an active, positive approach to one of the most tragic and discouraging chapters on preservation of a rare species that is taking place in the world."

Mr. R. G. Kirkham then gave a short account entitled "Some Birds in Australia", illustrated by colour film taken during his recent visits to Sir Edward Hallstrom's estates and the Taronga Park Zoo.

The morning closed with the following paper:—

Monsieur Jean Delacour.

POST-WAR PHEASANT BREEDING IN EUROPE AND AMERICA

"European collections of pheasants were at a low ebb just at the end of the last war. Only a small stock of some rare species remained in England, at Leckford, and in Belgium, at Beez. Mr. Spedan Lewis, with the help of the late Miss Chawner and of Mr. Milligan, had saved a few pairs of Temminck's Tragopans, Mikado Pheasants, Grey Peacock Pheasants, and a few others, while Mme. Malisoux had Satyrs and Blyth's, Tragopans, Greys, and Palawan Peacock-Pheasants. Prof. Ghigi still had birds at Bologna, and a number of pairs of the commoner species were to be found here and there. In America, however, pheasants were still plentiful and soon many found their way to Europe. The pheasantry at Clères was replenished by consignments from England and from America and so were several other continental collections.

The situation after nearly ten years has greatly improved, although importations of wild caught birds have been few. Several species however have come on several occasions: Palawan Peacock-Pheasants and Japanese Copper Pheasants have reached California; also a few Malay Argus and Crested Firebacks. From India came Satyr Tragopans, Koklass and Impeyan Monals. But the number of birds bred in captivity both in America and in Europe is constantly increasing. They sell readily and there is no doubt that the taste for pheasant keeping is also increasing, particularly in America and in Continental Europe. This is not the case in England where practically only two collections exist at the present time, at Leckford, at Whipnade and in London (Zoological Society).

It is a curious fact that pheasant breeding has always been a neglected branch of aviculture in Great Britain while bird-keeping generally has long been more popular and more successful there than perhaps anywhere else, although one must remember that more species

have been reared in captivity for the first time at the London Zoo, over a hundred years ago, than at any other place.

Belgium and Holland have very fine collections at present, mostly private ; but the excellent Rotterdam Zoo has greatly contributed to the promotion of pheasant keeping by importing several rare species and by rearing them in special secluded quarters, an example that other zoological gardens should follow.

There still are a number of private pheasant breeders in France, where the market for birds is excellent. The fairly large numbers reared at Clères every year fall, by a long way, short of the demand. The same is true of Italy.

Pheasant keeping in America is continually progressing. Not only the American Pheasant Society, national in scope, but several local clubs and groups, are active, and the number of birds reared each year is considerable throughout the country. The largest and finest collection to-day is that of Mr. R. H. Gibson at St. Helena, California, but there are many others, some very rich. The rarer species now reared in the United States include Malay Argus, Palawan, Gray and Germain's Peacock-Pheasants, Imperial, Edwards, Bel's (Berlioz), Mikado, Elliot's, Cheer Pheasants, Malay and Siamese Firebacks, Green and Sonnerat's Junglefowls, Satyr and Temminck's Tragopans. Blue Eared-Pheasants are plentiful and there is a fair number of Brown, which unfortunately are not breeding so freely as in the old days. Spicifer Peafowl are common in the west. White Eared-Pheasants are raised each year in small numbers, but their situation is precarious. Some have been crossed with Blue and the three-quarter bred birds are very similar to pure white. Perhaps this introduction of new blood may save the stock, which is not likely now to be soon renovated by imports from Western China. A few Bornean Crested Firebacks remain, but none has been reared in some years. No Copper Pheasants have so far been bred from the stock of birds recently imported.

There are just a few Cabot's Tragopans now in the United States, in England, and in Holland, and it is hoped that this beautiful species may soon be re-established, as it was one of the commonest in captivity. As to Blyth's, they are reduced to one pair, unfortunately so far infertile, in Mme. Malisoux's collection."

The meeting adjourned for lunch at midday, and resumed again at 2 p.m., when the following papers were contributed :—

Mr. K. A. Norris.

BIRDS OF BRITAIN

(Illustrated by coloured slides)

Mr. Norris's talk was designed to give the visitors from overseas an

impression of species more commonly to be found nesting throughout the British Isles, and the illustrations were divided into four groups :—

1. The small perching birds.
2. Birds of prey.
3. Waders.
4. Sea birds.

Species shown were Robin, Redstart, Whinchat, Wheatear, Spotted and Pied Flycatchers, Tree-Pipit, Reed-Bunting, Redbacked Shrike, Treecreeper, Green Woodpecker, Nuthatch, at an unusual nesting site in a stone wall, Dipper, Cuckoo with Hedge Sparrow foster-parent, and Kingfisher.

The birds of prey were represented by Tawny, Barn, Long-eared, and Short-eared Owls—a series of the latter to illustrate the remarkable change of expression of which this bird is capable, Kestrel, Merlin, Peregrine Falcon at the eyrie, and also of a trained bird “pluming” and tearing its prey, and the Common Buzzard at both tree and cliff eyries.

The waders depicted were Avocet, recently re-established as a British nesting species after a lapse of 125 years, Redshank, Curlew, Common Sandpiper, Snipe, Common Plover, Ringed Plover, Kentish Plover (now extremely rare as a nesting species), and Oystercatcher.

All the British nesting species of gulls were shown, Great Black-backed, Lesser Black-backed, Herring, Common, Kittiwake, and Blackheaded ; Common and Lesser Tern, Razorbill, Guillemot, and Puffin, and finally several illustrations of the Gannet colony on Grassholm, with an estimated population of 15-20,000 birds.

All the slides were of a very high standard and of perfection in colour rarely seen. The slides of the Peregrine tearing its prey and the Razorbills in flight were especially outstanding.

Mr. H. J. Frith.

BREEDING OF THE MALLEE FOWL (*Leoipoa ocellata*)

(Illustrated by slides and colour film)

Mr. Frith gave a detailed description of the extraordinary nesting habits of this little-known bird, which he has closely studied for a number of years. He showed slides of the inland scrubs of Australia which the Mallee Fowl inhabits, and gave an account of how it forms a mound of sand in which is incorporated a quantity of dead leaf material where the eggs are laid and left to be incubated by the heat generated. Mr. Frith showed that the greater part of the heat for the incubation of the eggs is supplied by the fermentation of organic material and for much of the season the sun's heat is of secondary importance. He explained how the birds attended to the mound

almost daily and, by opening and closing it, regulate the internal temperature of the egg chamber. Mr. Frith stated that this process usually results in a loss of heat and cooling of the egg chamber, which is contrary to the usually accepted theory that it causes an increase in temperature by means of solar heat. Only towards the end of the breeding season does it become necessary for the birds to make use of the heat of the sun, and they achieve this by removing the soil cover to within an inch or so of the eggs during the day. Mr. Frith then showed a colour film, the first ever to be taken of this subject, of the Mallee Fowl and their mound, the hen laying eggs, the position of the eggs when laid, and the birds attending to the mound. One amusing incident showed, at a moment when the actions of the birds were not completely synchronized, one of the pair scratching away the earth from the mound while the other was carefully scratching it in.

Mr. J. J. Yealland, Curator of Birds, Zoological Society of London, introduced and briefly commented upon points of special interest in a colour film of some Australian birds, kindly lent by the Australian News and Information Bureau.

Emus and their chicks, parrakeets, Black Swans and cygnets, the Laughing Kingfisher, the nesting of some of the small insectivorous birds, the male Brush Turkey scraping together the large heap of leaves forming the nest and incubator for the eggs, and the display of the male Lyre-bird were well shown by photography of a high standard.

Lieut.-Col. C. L. Boyle then gave an account of "Birds of Kashmir", illustrated by slides. The slides, which were all from photographs taken by the lecturer, were of very high standard, and well demonstrated the continued value of black and white photography.

At the close of the session, Mr. G. T. Iles again showed his film "Fine Feathers", also one taken at the Antwerp Zoo on the occasion of the meeting of the International Union of Directors of Zoological Gardens, in 1953.

The meeting adjourned at 4 p.m. for tea in the Library of the Zoological Society, and later a cocktail and sherry party was given by the Hon. Secretaries, Miss Kay Bonner and Mr. A. A. Prestwich, at the Rembrandt Hotel, South Kensington.

The programme on Saturday morning, 19th June, began at 10 a.m., when the following paper was given.

Dr. William J. L. Sladen (Falkland Islands Dependencies Scientific Bureau, London, and Edward Grey Institute, Oxford University).

PENGUINS IN THE WILD AND IN CAPTIVITY

(Illustrated by slides, colour film and sound records)

With the experience of many years as director of the Zoological Park, Edinburgh, Gillespie (1932) writes, "of all the animals in a zoological park or garden, there is none more popular than the penguins." Yet these birds are almost unknown outside zoos because they are difficult to procure, expensive to keep, and more prone than any others to disease. Moreover, only a few hardy species breed successfully in captivity. The aim of every zoo would, no doubt, be to build up a healthy and contented community of breeding penguins under conditions as near as possible to their natural environment. Can a knowledge of the natural history of these birds studied in the wild in any way benefit them in captivity? I believe it can in many practical ways. In this paper I propose to give a very brief résumé of some conclusions made from a study in the wild, and then to discuss the possible practical applications of this knowledge to those in captivity.

A STUDY IN THE WILD

My knowledge of penguins in their natural environment is limited to seven species that breed in the Antarctic and Falkland Islands. The three *Pygoscelid* Penguins, the Adelie, *Pygoscelis adeliae*, Chinstrap,* *P. antarctica*, and the Gentoo, *P. papua*, were studied closely between 1948 and 1951. Much of what follows concerns these, and particularly the Adelie.† The principles discussed, which are in very general terms, can I feel be applied to other species.

Individual variation, familiar to all who keep animals in captivity or study large samples in the wild, needs re-emphasizing. Penguins are gregarious birds, and differences in temperament play an important part in captivity.

Age and breeding experience do not appear to have been stressed enough in previous literature. An Adelie community can be divided into three main groups according to age and breeding experience; the "experienced" (or established) breeders; the "inexperienced" (or unestablished) breeders, and the non-breeders. On the whole, the "experienced" breeders return to the same nests and keep the

* Often called the Ringed, Bearded, or Antarctic Penguin. I agree with Murphy (1936) that the South American name "Pinguin de Barbijo", equivalent to "Chinstrap Penguin", is the best vernacular name for this species.

† A summary of the breeding routine of the Adelie has been published (Sladen, 1953). A full account of the work on the *Pygoscelid* Penguins will shortly appear in the Falkland Islands Dependencies Survey Scientific Reports published by H.M. Stationery Office, London.



W. Sladen]

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THE OBSERVATION TENT AT HOPE BAY, GRAHAM LAND, 1948.

[To face p. 132.

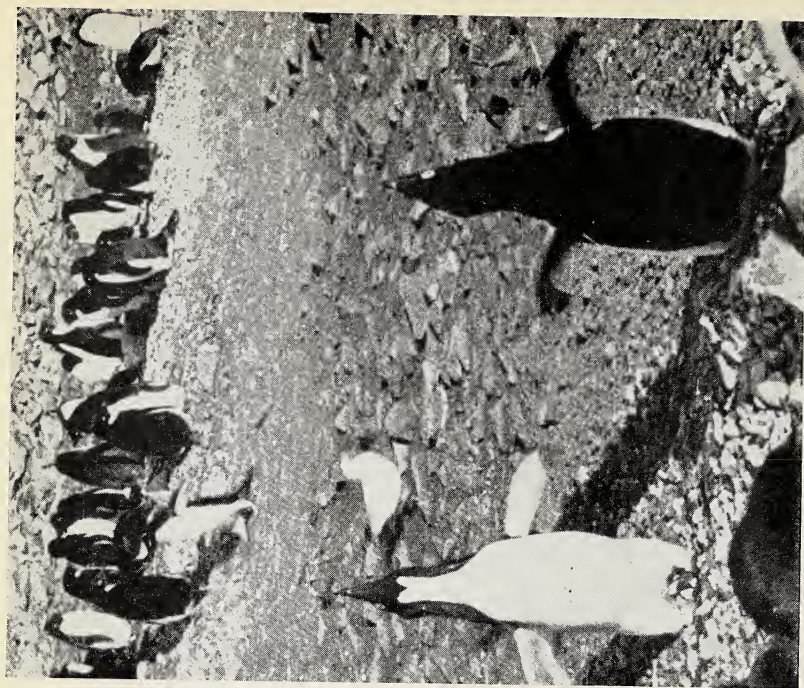
No. 2.



W. Sladen]

"INEXPERIENCED" BREEDERS
The Sheathbills behind are waiting in the hopes of
securing the dirt-stained egg.

No. 3.



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TWO ADELIES ALONE AT THEIR NESTS IN ECSTATIC
DISPLAY.

17th June 1954

same mates from year to year. "Inexperienced" birds, breeding for the first or possibly second time when two to four years old, first have to obtain nest sites and mates. To start with they may have to choose inferior sites such as the edge of the colony where the snow melts last and Skuas, *Stercorarius skua*, and Sheathbills, *Chionis alba*, can rob their nests more readily. Their behaviour differs from that of the experienced breeders. Courtship is more prolonged, fighting more frequent, breeding efficiency lower. The birds in Photo 2 were found on the edge of a colony. The female, while arranging herself more comfortably on her poorly built nest (compare with Photo 5) has inadvertently scraped away the egg with her feet. The Sheathbills behind are waiting for an opportunity to get at the egg, perforate it with their bill, and suck the contents. These little white birds, which do very well in captivity, know all about the penguins in their territory, and it is to nests such as these that they pay most attention. The non-breeders having no permanent attachments to territory, are seen in small parties walking around the rookery, or wandering far away inspecting rocky outcrops as much as 1,000 feet above sea level. A lone male might temporarily occupy territory, build a large nest, and keep company with a female. Next season this pair might come together again and breed for the first time. It is these "wanderers" and some of the unestablished "inexperienced" breeders which, under favourable conditions, will extend the range of the species by establishing colonies in new situations. They are also an important reserve population, ever ready to fill gaps. There is, of course, considerable overlap in these age groups due to individual variation. The only really satisfactory way to study these complexities is by long term research on marked birds of known age; a lead which has been given by Richdale (1951).

Sex differences.—The birds appear to be able to tell each others' sex, though to a human observer this is almost impossible. True, females are usually smaller and shier than males, but measurements and the temperaments of both sexes overlap to a considerable degree. One of the most reliable methods of sexing breeding birds is the one used by Richdale (1951), in which he compares the dilated, and maybe blood-stained, cloaca of the female soon after egg laying with that of her mate. Two birds seen copulating is another reliable indication of the sexes, though the possibility of homosexual and abnormal heterosexual relationships (especially in captivity) must not be ignored. In the Adelie additional evidence can be gleaned from breeding routine and courtship behaviour. For example, the male is always the first to incubate the newly-laid eggs, while his mate goes off to sea to feed. The ecstatic display (Photo 3) is confined to males during the early part of the season before egg laying and during incubation. These sex differences, though unreliable in other

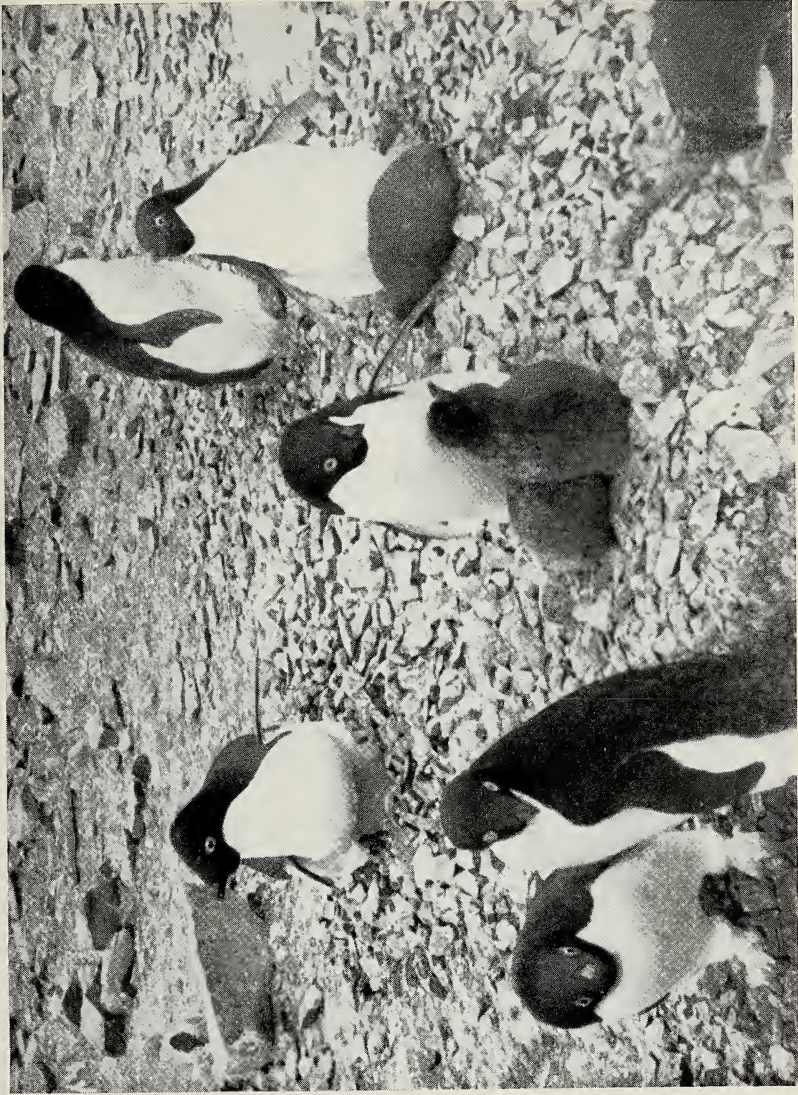
species, do however suggest that an intimate knowledge of the breeding routine in the wild would help in many ways. The only certain way to sex penguins (other than by dissection) would thus be to mark them early in the breeding season and observe their breeding behaviour closely. By the time the eggs have been laid, it should be possible to tell in most cases which is male and which is female.

Affinity, a word understood in human social structures, but little mentioned in works on birds, has been emphasized by Richdale (1951) in his ten year study of marked Yellow-eyed Penguins, *Megadyptes antipodes*. One interesting example given concerns a female (A) who had an affinity for male (B), when (B) was already mated to another female (C) and she, (A), already mated to male (D). In September, 1939, just before the eggs were laid, (A) and (B) were seen "keeping company" at (B's) nest when the rightful female (C) returned to the nest and ousted (A). For this season and the next, both (B) and (C), and (A) and (D), remained together at their respective nests, but in the autumn of 1941, after her chicks had been reared successfully, (C) disappeared. (A) forthwith deserted (D) and joined (B) at his nest. But the story does not end here, for (A) and (B) remained together and bred successfully for the next three seasons, their union only being broken when (A) was unhappily killed in a rabbit trap. Also interesting is the fact that (A's) former mate (D) remained without a partner the season after (A) had deserted him. Moreover, during the six consecutive seasons that Richdale followed the intimacies of their lives, this male (D) had three different mates, and twice remained unmated. He was perhaps an "odd man out".

The Adelie, though generally more faithful to its territory and partners (Andrew and Roberts, 1951) than the Yellow-eyed Penguin, shows these discerning qualities as well. They not only take in their surroundings, but are most aware of the temperaments of other birds around them. The affinity of one bird towards another plays an important part in pair formation and in other social relationships in the breeding area.

Breeding routine varies much from species to species. Only a few points which have practical application in captivity will be mentioned.

(1) *Fasting periods*.—Probably all Penguins fast during the moult, and may lose as much as 40 per cent of their body weight. The Antarctic species seem to be the only ones that fast for really long periods during the breeding season. The male Emperor, *Aptenodytes forsteri*, fasts the longest, eating nothing for at least sixty days (Stonehouse, 1953) and probably longer, during incubation. The Adelie comes next. Once arrived at the beginning of the season, it will not return to sea to feed until the eggs have been laid, and then it is the female that departs first, leaving the male alone. It is only when the



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ADELIES, LIKE MOST OTHER PENGUINS, NEST CLOSE TOGETHER IN CROWDED COLONIES.
[To face p. 134.]

No. 5.



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ADELIE PAIR AT WELL-BUILT NEST.

No. 6.



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GENTOO PENGUIN WITH CHICK AT ITS NEST OF STONES
AND OCCASIONAL BONE.

[To face p. 135.

female returns recuperated that the male can break his fast. The duration averages forty days (Figure 1), and his weight, starting at about 6.5 Kgm., will drop to about 3.5 Kgm. A fortnight at sea, however, is long enough for this bird to regain most of its lost weight.

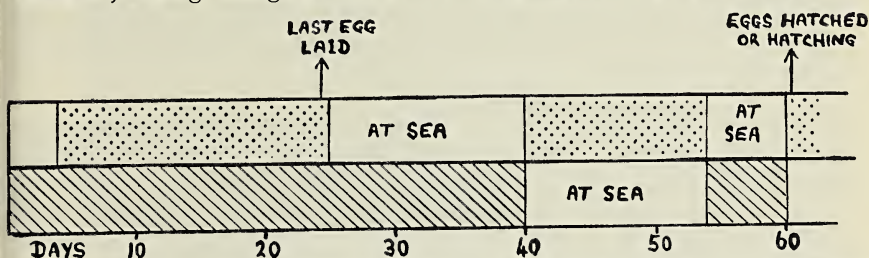


FIG. 1.—DIAGRAMMATIC NEST-HISTORY UP TO HATCHING OF EGGS MADE FROM THE AVERAGES OF SEVEN MALES AND SEVEN FEMALES RINGED AT SIGNY ISLAND ON 17TH AND 18TH OCTOBER, 1950.

Male fasting periods at nest (hatched) ; female (dotted).

(Note :—The first birds observed back at the rookery were seen on 8th October, so the first fasting periods may be slightly longer than stated.

(2) *Nest sites and nest building.*—Some penguins, for example, the Magellanic, *Spheniscus magellanicus*, and Black-footed, *S. demersus*, build their nests in burrows. Of the majority that lay their eggs above ground, the King, *Aptenodytes patagonica*, and Emperor are the only species that do not build a nest. The others build with the materials most easily available. Thus, in the Falkland Islands the Gentoo builds its nest of grass and twigs of "Diddle-dee", *Empetrum rubrum*, whereas in the Antarctic, where there is almost no vegetation, nest material is confined to stones (Photo 6) and the occasional bone of their dead companions.

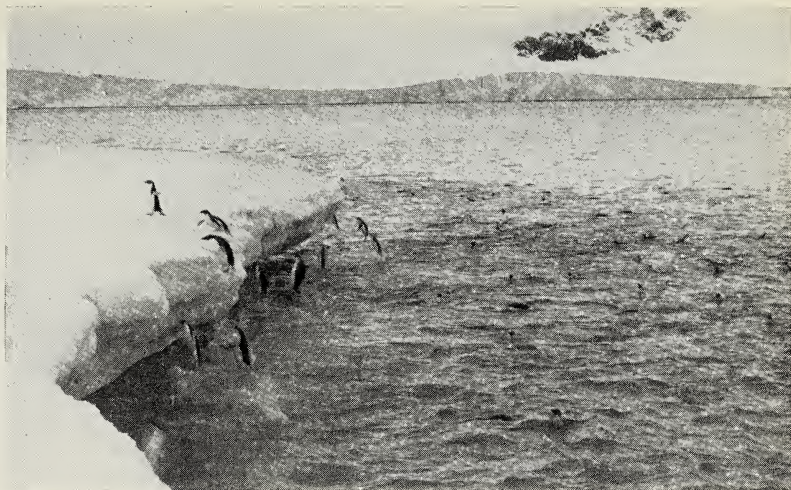
(3) *Rearing Chicks.*—This routine is shared by both parents, one guarding the chick (Photo 4) and feeding, while the other returns to sea to collect more food. Feeding is at intervals of one or two days, the chicks' stomachs having a great capacity for holding the food regurgitated to them. When the chicks are too large for guarding, the parents leave them to look after themselves and are both away at the same time collecting food. Visits then become more irregular. Most of the species that breed close together in big colonies, such as the Adelie, Chin-strap, Emperor, and King, have what is known as the creche system where the chicks group together in large numbers up to two hundred or even more. I believe this is chiefly for protection from predators, and in particular from the Skua. This bird will attack and kill any chicks that are isolated from the creche and alone. Another factor is protection from the cold, the importance of which has been emphasized in the Emperor by Stonehouse (1953). When Adelie chicks begin to moult their down and show their first year plumage,

they no longer seek the protection of the creches and disperse back to their nest sites. Skuas can now be seen walking among the chicks which do not show fright, for the chicks quickly repel those that approach too close. The Skuas thus respect penguins that show a bold front. During my studies on the Pygoscelid Penguins I was constantly impressed by the fact that these predators, almost without exception, attacked the weak or stupid chicks only.

Individual recognition.—Richdale has shown that Yellow-eyed Penguins recognize others in the community, and parents recognize their own chicks. Unlike the Adelie, whose chicks group together in creches, the Yellow-eyed Penguins' nests are scattered among rough and wooded country. Previous literature on the Adelie summed up by Murphy (1936) suggests that parents do not recognize their chicks in the creche and that they feed indiscriminately. In 1948-49, I placed coloured rings round the flippers of chicks of marked parents before they went into the creches and discovered that the parents found and fed their own offspring, and only under exceptional circumstances fed strangers. A substantial amount of evidence was also collected to support the fact that the pair-bond between two Adelies was maintained more as a result of the individuals recognizing each other from year to year (even after separation during the winter months) than by their return to the same nest sites. Penguins recognize each others' features, gait, movements and voice. The mutual display seen so frequently between two of a pair and between parents and chicks at the nest, and later when a parent comes back to feed its young in the creche, has an important function in the Adelie, for I believe the noise and movements confirm as well as re-enforce recognition.

Individual recognition thus plays a very much more important part in a penguin community than has generally been supposed. The more one studies these interesting birds by marking them, the more is one impressed by the orderliness of their social structure, a structure based on many attributes which are taken for granted in human behaviour, but which might be thought incredible in such a lowly animal.

Porpoising is the normal swimming movement of penguins and is used by no other birds. Adelies porpoising at high speed is a truly magnificent sight. Swimming for several yards under water they surface, and, barely rising as much as a foot, vanish under the surface again a few feet ahead. They no doubt breathe each time they surface, and can travel at ten knots or more. When landing, an Adelie (Photo 7) or Gentoo will pop out of the water like a jack-in-the-box, clearing up to six feet of ice-cliff in an almost vertical leap. Sometimes they land erect and, balanced by their tails, run



W. Sladen]

ADELIES LEAPING OUT OF THE SEA ONTO THE ICE-FOOT



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CHIN-STRAP AT NEST WITH TWO CHICKS. NOTE FLIPPER RING

[To face p. 136.

forwards halting hurriedly. At other times, still landing on their feet, they will fall on to their bellies and toboggan along the snow surface in a most enchanting and amusing manner.

Pathological conditions in the Adelie, Chin-strap, and Gentoo Penguins.—Infestation with intestinal parasites was the only constant pathological condition found in wild penguins. The amount of infestation varied according to the species, and in the case of the Gentoos also according to their breeding distribution. For example, the Falkland Islands breeding Gentoos were almost free, whereas the ones breeding in Graham Land and the South Orkneys were riddled with a cyst-forming cestode.

Many wild birds were dissected,* but in none was found any macroscopic evidence of the fungal infection which causes mycosis. Moreover, forty-one cultures taken from throats of healthy Penguins at their breeding places or within six days of capture, though they grew a variety of moulds, did not demonstrate any that were potentially pathogenic. These cultures, collected by swabbing the part of the throat around the nasal passages and epiglottic region, were grown on Sabouraud's media, and brought back to the London School of Hygiene and Tropical Medicine for identification. More work of this nature is required, for evidence that the spores of pathogenic moulds do not occur as normal inhabitants of the upper respiratory tracts of wild birds is still fragmentary. Nor is there sufficient evidence that the spores reach the birds via infected foodstuffs (Sladen, 1952).

Wild penguins are therefore remarkably free from disease and it is only when they are brought into captivity that they become susceptible.

CAPTURE AND TRAVEL

How can our knowledge of penguins in the wild be used to build up a healthy and contented community of breeding birds in captivity? We have seen that they know each other as individuals, usually keep the same partners from year to year, and come back to the same area, and often to the exact nest-site, to breed. Affinity draws some together; lack of affinity repels others. Disease appears to be accelerated when a bird is unhappy and lonely; morale higher when their gregarious nature is satisfied. In the light of such knowledge, the capture of penguins becomes a job which should not be undertaken indiscriminately, as is so often the case, but in a careful and thoroughly scientific manner. I believe the best way to do this would be to collect a complete section of a penguin colony. This section should include peripheral nests as well as central ones for, as already

* It was necessary to feed our sledge-dogs on seal and penguin meat. Maximum biological use was made from all collected for this purpose, and particular care was taken to cause no unnecessary waste of life.

explained, the inexperienced younger birds are more likely to be on the edge than inside. In theory, this sounds excellent, but it may be difficult to put into practice. For example, at what time of the season should they be collected? This can only be answered according to knowledge of the breeding routine and habits of the individual species, a knowledge which is still incomplete for most, and is thus quite out of the scope of this paper. A few general principles should, however, be discussed.

First, the birds should not be incubating or rearing chicks, for one of the pair is likely to be away at sea. Second, though most species return to their breeding place to moult, after recuperating from the breeding season at sea, and during this period fast for about a fortnight, the physiological upset at this time would make travelling (especially through the tropics) undesirable and probably dangerous for the birds. Thus the only good time to collect birds, as a community, may prove to be during the short period after most of the colony have settled down into pairs at their nest sites and before eggs are laid. The Antarctic is still ice-bound when the Adelies are at this stage. The Chin-strap colonies might be more accessible for their breeding cycle starts roughly one month later, and the first eggs are laid at the end of November or early December. Penguins that breed in the Sub-Antarctic and more temperate zones, and particularly the non-migratory species, should present fewer problems, and I would suggest that this method of collecting a section of the community should be tried first on these.

It is now generally accepted by zoos that the expense of transporting penguins by air is worth while. In my own experience, they travel best if standing on half-inch mesh wire netting in a box of similar design to that recommended in the Third Annual Report (1949-50) of the Severn Wildfowl Trust. A slatted front with sack curtain is much safer than a wire netting front, through which they thrust and often damage their bills.

LIFE IN CAPTIVITY

Two, often conflicting, points of view must be considered: the birds', and the zoo's.

From the Birds' point of view.

(1) *A community of the same species.*—Many zoos are justifiably anxious to exhibit as big a variety of animals as possible. For penguins, however, there should be a different approach, an approach which concentrates on building up reasonable sized communities of at least ten pairs each of, say, two or three individual species. Zoos in different parts of Britain and America will eventually discover which of the eighteen possible species of penguin are most suited to their climate and conditions. How much more interesting and instructive will it

then be to visit different places boasting successful breeding colonies of their own specialities.

(2) *Acclimatization*.—The first year in captivity usually takes the greatest toll of wild birds. More attention paid to acclimatization during this period, for example, by transporting them direct to a spacious quarantine station in the country, might save money in the long run. The upkeep of a lake and enclosures would be prohibitive for one zoo, but could be shared by several. A station like this could solve many problems of quarantine in zoos, and also prove of immense value as a centre for investigating avian disease, and especially mycosis, in captivity. Unfit birds could be sent there for observation and would, no doubt, stand a better chance of recovery than if left in unfavourable and cramped conditions in zoos. Gillespie (1932) stresses the fact that King Penguins, once recovered from the strain of their voyage to Europe, become indifferent to conditions of weather and temperature, and if anything, prefer the sunshine. Thus the most important functions of acclimatization would be (i) to build the birds up to the health they enjoyed before capture, (ii) to allow them to adapt themselves to different food and a new fresh water environment and, probably the most important, (iii) to give them a chance to adjust themselves to a very much less active life in captivity.

(3) *Space and nesting sites*.—From the birds' point of view, obviously the larger the enclosure and the deeper and bigger the lake the happier they will be. There must be limits, but the limits set by many zoos are too severe. Penguins in captivity are very rarely seen porpoising because the ponds are too small and shallow. They are sometimes even deprived of their natural nest material. If they build nests of stones or grass they should be given stones, or typical grasses planted in their enclosures (as is most successfully done at Edinburgh Zoo). If they nest underground in burrows, they should have a suitable place for this. Due to lack of appreciation of their habits and behaviour in the wild, these very simple but fundamental requirements are often overlooked; yet one or two small points rectified might tip the balance in favour of breeding.

(4) *Human interference* is a difficult and controversial topic. Should birds that refuse food be force-fed? Should a bird that scratches away its new laid egg from the nest, or tramples its young chick, be interfered with? These questions I cannot answer with any authority for birds in captivity, but in the wild this kind of behaviour is seen frequently where certain species normally fast for long periods, and where many apparent inconsistencies in behaviour and temperament can be attributed to age and breeding experience (Photo 2) as well as to variation among individuals. The establishment of a reasonable sized community of one species would minimize the need for human

interference because the birds would be happier and breeding, and it would not matter losing the odd egg or young chick.

(5) "*Occupational therapy*."—No better example can be given than the King Penguin parade to the post-box at Edinburgh. This kind of activity has public appeal, and gives the birds something else to look forward to as well as their food. The exercise keeps them in condition, while all the time they are becoming more familiar with humans at close quarters. If this sort of therapy is not practicable, they should at least be given their natural nest material to "play" with, or suitable breeding burrows to excavate.

From the Zoo's point of view.

A balanced view must, of course, be taken, for penguins are not the only animals in a zoo! Much will depend on the size of the zoo, its situation, and financial commitments. A large zoo could probably afford the upkeep of a large enclosure with communities of two or three species. There is no reason why species should not be mixed, in fact the contrast in behaviour between one kind and another is most entertaining. In the Antarctic, the Adelies, Chin-straps, and Gentoos breed in the same rookeries, and often side by side. On Deception Island, South Shetlands, a small colony of Macaroni Penguins, *Eudyptes chrysolophus*, nest amidst a community of hundreds of thousands of Chin-straps. A small crowded zoo would save unnecessary expense and disappointment by purchasing captive bred penguins, and concentrating on one species only. If enclosures must, of necessity, be small, some form of "occupational therapy" will help to keep them happier.

Acclimatization for a year, although ideal for the penguins, will be an additional financial burden for a zoo whose aim is naturally to have the birds on show as soon as possible. This approach, as already explained, should save money in the long run. Hygiene is another controversial subject, though the zoos that worry least about this appear to have the best breeding results. Penguins live in squalor in the wild, and I therefore believe it more important that they have adequate nesting material and surroundings than a barren and uninteresting enclosure designed for frequent ablutions. Surely visitors to a zoo have to be prepared for a few strange smells. A community of penguins would, however, find it difficult to compete with the odours that come from the elephants, seals, or a wallowing hippopotamus. Moreover, incubating penguins are often fasting, and their excreta quite innocuous. Carefully designed enclosures could discourage the accumulation of too much guano, and still allow the birds plenty of scope for breeding in as near a natural environment as possible.

A STUDY IN CAPTIVITY

A study in captivity cannot take the place of a study in the wild, for three important reasons :—

- (i) The birds are in confined and abnormal surroundings.
- (ii) A large enough sample cannot be studied to make allowances for variation among individuals.
- (iii) Those in authority in zoos are naturally reluctant to allow birds or their young to be handled.

There is, however, an almost unexplored field for research on many practical aspects of life in captivity, and these, correlated with a knowledge of the same species' behaviour in the wild would ultimately help to solve many problems such as breeding efficiency, the moult, mycosis, and some aspects of behaviour. So many ideas and "hunches" are founded on isolated examples, and it is only by systematic and well planned research on a small community that our knowledge can be really furthered.

As in the wild, one of the most important aids to a study in captivity is to mark the birds. I do not wish to refute the fact that the keepers and those who spend a long time with their birds recognize them as individuals. They no doubt do if the number is small enough, but research workers come and go, and valuable material is sure to be lost during the penguin's life span of ten to twenty years. They should therefore be marked with metal rings as soon as they arrive in the collection. These rings, bearing a large reference number (or popular name for each individual if preferred for public enjoyment), are best attached round the flipper (Photo 8), in the axilla so that the number can be plainly read from a distance. These flipper-rings (Sladen, 1952*a*), must be put on very carefully, otherwise they will injure the bird. Richdale (1951*a*) marked his wild birds with tarsus rings. These also require skill and care, and though successful with the New Zealand penguins, are unsuitable for the Antarctic species which nested on rocky ground.

ACKNOWLEDGMENTS

I would like to express my thanks to Dr. J. T. Duncan and Dr. G. Smith, of the London School of Hygiene and Tropical Medicine, for kindly identifying the moulds isolated from penguins in 1949 and 1951 and to Dr. L. E. Richdale for advice and criticism of this paper.

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Dr. Edward Hindle, Mr. G. S. Mottershead, Chester Zoo, Mr. D. H. S. Ridson, Dudley Zoo, and Miss Phyllis Barclay-Smith, took part in the discussion on penguins in captivity which followed.

The President of the Conference then moved a vote of thanks to the President and Council of the Zoological Society of London for the loan of their meeting room and many other facilities, and this was agreed with acclamation.

Miss Barclay-Smith then said she would like to move a particularly warm vote of thanks to Mr. L. Ellis, Library Assistant of the Zoological Society, who had been in charge of all the projection of films and slides, during the Conference, and to whom a great deal of the success of the meetings was due. This was received with prolonged applause.

A vote of thanks to Miss Barclay-Smith for presiding over the meetings was moved by Miss E. M. Knobel, Vice-President of the Society, and the proceedings then terminated.

On Saturday afternoon a Garden Party was held at Foxwarren Park, Cobham, Surrey, at the invitation of the President of the Avicultural Society and Mrs. Ezra, and was attended by 150 guests.

In the evening the closing dinner was held at the Rembrandt Hotel, at which one hundred members and guests were present.

Chairman : Miss P. Barclay-Smith.

Members of the Society :—Mrs. H. G. Alderson, H. Blythe, Miss K. Bonner (Assistant Secretary), Mrs. V. M. Bourne, W. J. Boyd, G. T. Clark, Mrs. G. T. Clark, J. O. D'eath, O. E. Dunmore, A. Ezra (President), J. F. M. Floyd, Miss S. A. Fothergill, J. C. Garratt, Miss D. Gask, Rt. Hon. Lord Gerard, H. J. Harman, Dr. E. Hindle, G. T. Iles, S. B. Kendall, H. T. King, R. G. Kirkham, Miss E. M. Knobel (Vice-President), Miss M. H. Knobel-Harman, J. C. Laidlay, Dr. F. B. Lake, H. M. Luther, P. H. Maxwell, E. R. Mighell, F. Mosford, G. S. Mottershead, H. Murray, S. Murray, Sir Crawford McCullagh, Bart., K. A. Norris, C. M. Payne, S. Porter, A. A. Prestwich (Hon. Secretary), J. H. Reay, D. H. S.



MISS KAY BONNER AND MR. A. A. PRESTWICH.

DIAMOND JUBILEE DINNER,





19th JUNE, 1954.



LEFT TO RIGHT :—MONSIEUR W. VAN DEN BERGH, MISS PHYLLIS BARCLAY-SMITH, MONSIEUR
JEAN DELACOUR, MADAME VAN DEN BERGH, DR. E. HINDLE.



LEFT TO RIGHT :—MR. G. ILES, MR. D. RISDON, MISS KAY BONNER,
MR. G. S. MOTTERSHEAD.



MR. S. PORTER AND MEVROUW LOUWMAN.

Risdon, R. C. J. Sawyer, P. Scott, D. Seth-Smith (Vice-President), A. Silver, E. Wilford Smith, T. Spence, E. N. T. Vane, Captain R. W. Veitch, N. S. Walker, H. Waller, E. C. Whatley, H. Wilmot, J. J. Yealland.

Overseas Members and Guests.

Belgium.—M. Walter Van den bergh (Director, La Société Royale de Zoologie d'Anvers), Mme Walter Van den bergh.

Denmark.—Paul Hansen.

Germany.—Dr. Joachim Steinbacher, Editor (*Die Gefiederte Welt*).

Holland.—G. de Goederen, Mrs. G. de Goederen, Mrs. P. Louwman, J. Louwman, Wassenaar Zoo.

U.S.A.—Dr. G. A. Allen, Editor (*Pheasant Fanciers, Game Breeders, and Aviculturists' Gazette*), Mrs. Belle J. Benchley, Jean Delacour (Vice-President).

Guests.—Dr. K. Aylwin-Gibson, J. Bailey, Miss A. Blythe, Lieut.-Col. C. L. Boyle (Secretary, Fauna Preservation Society), Mrs. C. L. Boyle, Mrs. W. Buckingham, S. A. Croucher, Mrs. S. A. Croucher, L. Ellis, Mrs. L. Ellis, Mrs. J. C. Garratt, Miss K. Gentry, T. A. M. Jack (Falconers' Club), E. R. W. Lincoln (Editor, *Cage Birds*), Sir Philip Manson-Bahr, Lady Manson-Bahr, Mrs. R. Maurice, Mrs. S. Murray, Mrs. C. M. Payne, Miss R. Phillips, Mrs. J. H. Reay, Dr. K. G. Rothwell, Mrs. K. G. Rothwell, Mrs. R. Russell, Mrs. D. Seth-Smith, Dr. W. Sladen (Falkland Islands Dependencies Survey), Mrs. E. Wilford Smith, Miss M. Wilford Smith, E. B. Tanner, D. F. Waller, Mrs. D. F. Waller, Mrs. H. Waller, Miss M. White, Mrs. H. Wilmot, A. J. Woods, Mrs. A. J. Woods.

A special souvenir menu was provided, with a coloured illustration of the Green-headed Olive Sunbird.

The following toasts were made :—

H.M. The Queen

Proposed by the Chairman.

The Society

Proposed by Sir Philip Manson-Bahr, C.M.G.

Reply by M. Jean Delacour.

Overseas Guests

Proposed by Miss P. Barclay-Smith.

Reply by Mrs. Belle J. Benchley.

The Secretaries

Proposed by Dr. E. Hindle, F.R.S.

Reply by Mr. A. A. Prestwich.

In addition, the Chairman was pleased to take wine with numerous members and guests.

One hundred and thirty-seven members and guests registered for the Conference, and all the Vice-Presidents of the Avicultural Society attended, with the exception of Mr. Edward Boosey, who was prevented by illness at the last moment from being present. Mr. and Mrs. P. Duyzend (Holland) and Monsieur C. A. Ullens de Schooten (Belgium), attended the Conference, but were unable to be present at the dinner.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

Mr. and Mrs. G. M. Durrell have recently returned from Argentina and Paraguay, bringing a small collection of birds, mammals, and amphibians. Some of these were presented to the Society, and the remainder to the Paignton Zoo. Among the birds were a Brown Cachalote (*Pseudoseisura lophotes*), the first of this genus to be exhibited here; a Southern White-breasted Crake (*Creciscus leucopyrrhus*), also known as the Red and White Crake, and two d'Orbigny's Pectoral Sparrows (*Arremon orbignii*), new to the collection.

Two Guira Cuckoos (*Guira guira*); an Argentine Lapwing (*Belonopterus cayennensis griseus*); two Jendaya Conures (*Eupsittula jendaya*); a Scarlet-headed Marsh Bird (*Anblyrhampus holosericeus*); a Green Cardinal (*Gubernatrix cristata*); two Yellow-billed Cardinals (*Paroaria capitata*); a Brazilian Blue Grosbeak (*Cyanocompsa cyanea*); three Striated Tanagers (*Thraupis bonariensis*); two Violet Tanagers (*Tanagra violacea*), and a Blue Sugar-bird (*Dacnis cayana*) complete this interesting presentation.

It will be seen that not all these birds were collected in Argentina and Paraguay; some were obtained in Rio de Janeiro on the way home.

The *Daily Mail* Himalayan Expedition has presented two Satyr Tragopans (*Tragopan satyra*); a Himalayan Monal (*Lophophorus impejanus*) and a Himalayan Snow Partridge (*Tetraogallus himalayensis*); Mr. Sibley sent a gift of two Lapland Buntings (*Calcarius lapponicus*); two Yellow Buntings (*Emberiza citrinella*); a Reed Bunting (*Emberiza schanichus*); four Twites (*Carduelis flavirostris*); two Lesser Redpolls (*C. flammea cabaret*); a Goldfinch (*C. carduelis britannica*);

two Lesser Whitethroats (*Sylvia curruca*); a Wheatear (*Enanthe enanthe*), and a Greenland Wheatear (*Æ. æ. leucorrhoa*). A Kittiwake Gull (*Rissa tridactyla*) has also been presented.

Three Pileated Jays (*Cyanocorax chrysops*); a pair of Wedge-tailed Sunbirds (*Anthobaphes violacea*), and a Black-headed Bunting (*Emberiza melanocephala*) have been purchased; a Brown Thrasher (*Toxostoma rufum*) deposited, and six King Penguins (*Aptenodytes patagonica*); four Purple Herons (*Ardea purpurea*); a pair of Teal (*Anas crecca*), Common Wigeon (*A. penelope*), and Common Sheld-Duck (*Tadorna tadorna*) have been received in exchange. Two Night Herons, six Egyptian Geese, two Upland Geese, a Silver Gull, a Black-footed Penguin, five Red-rumped Parrakeets, and three Greenfinches have been bred. The King Penguins, Rheas, Snowy Owls, and Green-winged King Parrakeets have eggs; the Canada, Greenland White-fronted, and Emperor Geese all laid infertile clutches.

The Marabou Storks and Indian Wood Ibises showed signs of nesting, and carried twigs about, but nothing came of it. The Choughs got as far as hatching a chick, but it did not long survive.

It is hoped that the aviary for homing Budgerigars will be finished by mid-July.

* * *

BRITISH AVICULTURISTS' CLUB

Meetings and dinners during the 1954-55 session have been arranged for the following dates:—

8th September, 1954.
10th November, 1954.
12th January, 1955.
9th March, 1955.
11th May, 1955.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

Miss Phyllis Barclay-Smith represented the Society at the XIth International Ornithological Congress, at Basel, 29th May-5th June, 1954.

* * *

A. K. Klenk, Western Australia, reports a prolific pair of Gouldians. Last breeding season they had twenty-nine young ones from five nests—six, seven, four, five, and seven.

* * *

Green-winged King Parrakeet—two have been reared at Foxwarren Park : one hatched at the London Zoo was taken by vermin. Lineolated Parrakeet—Mrs. D. K. Draper—has two young ones flying. Black-headed Conure—C. M. Payne has three very advanced young ones in the nest-box.

* * *

Few of our members have been so consistently successful in breeding rare birds as Sidney Porter. During the past thirty years he has had many successes, but now there is the prospect of one to eclipse all previous—the Malachite Sunbird. The first nest contained an egg with a fully-developed young one that failed to emerge. The hen is again sitting on two eggs—this time it is to be hoped with a happier result.

* * *

C. af Enehjelm, Helsingfors, reports one Black-crested Finch fully reared ; two left the nest, but one was weakly and soon died. The parents are again on three eggs. Also reared : one Red-headed Parrot Finch, five Cherry Finches, one Fire Finch, three Ruficaudas, three Bichenows, and five Cordon Bleus. It has been a bad year so far for Parrot Finches ; many clear eggs and one young one from one pair ; three other pairs have done nothing at all.

* * *

D. Bowles, Director-Secretary, Royal Zoological Society of Scotland, reports on the breeding of King Penguins in the Edinburgh Zoo, 1953 : "Thirteen King Penguin eggs were laid, of which five proved to be infertile. Of the remaining eight, three chicks hatched, but one died a few days afterwards. This meant that five birds were found dead in the shell, and it appears almost certain that the reason for this was some violent electric storms which occurred a few days before the eggs were due to hatch, causing the parents to desert the eggs, which were thus allowed to chill resulting in the death of the inmates." Altogether, a total of 23 Penguin eggs were laid, from which seven

chicks were reared—two King, two Gentoo, one Ringed, and two Macaroni.

* * *

A nest of four blue Ring-necked Parrakeets, not three as previously reported, were hatched at Keston. Misfortune, however, overtook this brood. Vice-President Boosey writes : “ My heart sank as each day became colder and colder about the middle of May, as I knew the young Ringnecks would be in that critical stage when they are too big for their mother to brood them, but they are only just starting to feather. Finally, when the parents had started to eat less and less, I decided to look in the nest-box, and found three well-grown young ones in the quill stage, dead ; only the fourth and eldest, which was better-clothed, being still alive.” The fourth young one eventually left the nest, but was later found dead in the shelter—possibly killed by a marauding Magpie.

* * *

A tragedy of another kind has occurred at a well-known zoo. A pair of Lesser Sulphur-crested Cockatoos showed great interest in a nest-box, and when they disappeared it was assumed they were nesting in earnest. When, after several days, the box was inspected, the two Cockatoos were found to be dead, having been unable to climb out. Since then we have heard of a Leadbeater's Cockatoo suffering a similar fate. These events are cited as a warning to breeders to make doubly sure that their birds have an easy means of climbing up to the entrance hole.

A. A. P.

* * *

REVIEWS

CIEN DE LAS MAS CONOCIDAS AVES VENEZOLANAS. By KATHLEEN DEERY DE PHELPS. Published by the Creole Petroleum Corporation, Caracas, Venezuela.

This attractive book, the first illustrated book on the birds of Venezuela to be published, does great credit to its author, who is also responsible for the coloured plates. It contains a hundred coloured illustrations of the best known birds in Venezuela with a descriptive text about the bird, its nest, eggs, and other details, together with a map showing its distribution. The distribution maps are coloured differently, each colour indicating a different zone according to the altitude, for instance the tropical zone 0 m. to 1,500 metres is depicted in red, the sub-tropical zone, or 1,500 to 2,500 metres, in yellow, the temperate zone from 2,500 to 3,500 in blue, and the heights above this in grey. By this method it can be seen at a glance at what altitudes the bird is found. Hints are given as to the food to be put out for birds,

and how to attract them to the garden by the provision of water. Advice on photographing birds is added and also ideas for noting observations. A section deals with the protection of birds pointing out that they have many enemies and drawing attention to their usefulness in destroying harmful insects.

The book, which is primarily intended for distribution among the schools of Venezuela, is one that all those interested in the colourful birds of the South American continent will wish to possess. The Creole Petroleum Corporation are to be congratulated on their far-sightedness in making the publication of this book possible for it will undoubtedly do much to arouse an interest in the birds of Venezuela both in that country and other parts of the world. Anyone wishing to obtain the book should write to the Creole Petroleum Corporation, Caracas, Venezuela.

P. B-S.

COLLECTION OF 24 COLOURED POST-CARDS. Editions N. Boubée and Cie, 3 Place St-Andre-dex-Arts, Paris (VIe). 700 Fr.

A collection of 24 coloured post-cards from paintings by that well-known French bird artist, Paul Barruel, have been published by N. Boubée at 700 francs for the set, or 300 francs for 10 of the same subject. The birds depicted are Pelican; Amherst and Golden Pheasants; Ostrich; Flamingo and Little Egret; White Stork; Mandarin Duck (male and female); Mute Swan; Great and Blue Tits; Golden Oriole; Swallow; Chaffinch and Goldfinch; Skylark, Long-eared Owl, White and Blue-headed Wagtails, Kingfisher, Green and Great Spotted Woodpeckers; Ruby and Topaz Humming Bird and Racquet-tail Humming Bird; Great Bird of Paradise and Superb Bird of Paradise; Yellow and Blue Macaw, and Blue-fronted Amazon; Sulphur-crested Cockatoo; Ariel Toucan, and Red-billed Toucan; Condor, Peacock, King Penguin. The names of the birds in French, English, and German, together with the scientific name are given on the back of the card and also the size of the bird and the country of origin. The cards are brightly coloured and attractive though somewhat diagrammatic in treatment.

P. B-S.

* * *

NOTES

NOTES FROM LOURENÇO MARQUES

You may be interested to hear that I have another pair of African Greys with young. After one abortive attempt—due I think to interference, unintentional, on my part—the hen went to nest again in March. I have not dared—after my first experience—to disturb the birds, so do not really know what has happened. I am satisfied, however, that at this date there must be young as one or other of the birds is always on the nest.

Incidentally, amongst my “run of the aviary” breeding successes this year, I have managed to rear two lots—each of two—of Crested Barbets and one of Magpie Robins

(from India). A third brood of Crested Barbets was lost—again because of interference. The more breeding I have the good fortune to supervise, the more I am convinced that losses are to a very large extent caused by the intentional or unintentional interference of the over-curious and impatient owner.

I recently procured, in very damaged condition, a Little or Pigmy Bee-eater. I have now had it a month or so, and it is very nearly back to normal. I have force-fed it on meat, which it still does not always take willingly, and on grasshoppers, mealworms, etc., and I now see no reason why it should not make the grade. I am quite proud of this achievement, for which I must thank my wife who struggled manfully while I was away at office, as this is the first Bee-eater I have ever tried to keep. Contrary to what I have read, this Bee-eater is far from silent—in fact on a warm day it keeps up a constant chattering, and has a very pretty little song.

E. H. HAWKE.

BREEDING GOLDEN-SHOULDERED × HOODED PARRAKEET HYBRIDS

The Golden-shouldered is exceptionally rare. For the last twenty-five years I have made many attempts to procure them, without success, until this year when two birds came into my hands. As these were both males, I had no alternative but to give them females of their closest relative—the Hooded Parrakeet. One male immediately commenced driving the female, and proceeded to dig a large hole under their bath trough. The female, however, preferred a nesting box, which the male eventually agreed to. Four eggs were produced and four youngsters are now completely reared—three males and one female. It was most interesting that this small, cheeky bird would immediately attack me on entering the aviary, and on several occasions it nipped my ear, or the back of my hand. Another point of great interest is that the Golden-shouldered and the hybrid can be sexed as soon as they leave the nest. The female is quite plain, but the male is very much brighter.

For the breeding season commencing May of 1955, I am proud to say that (excluding hybrids) at least four pairs of Golden-shouldered are already in my aviaries.

E. HALLSTROM.

* * *

CORRESPONDENCE

BREEDING OF RED AND YELLOW MACAWS—CORRECTION

Sir Edward Hallstrom, on reading through my letter as published in the March-April AVICULTURAL MAGAZINE, has called attention to an error. The paragraph in question should read "The Red and Yellow Macaws have reared five youngsters" and the words "this year" were incorrect. These birds are again nesting.

WALTER H. TURNER.

462-4 WILLOUGHBY ROAD,
WILLOUGHBY,
SYDNEY, AUSTRALIA.

LIBERTY FISCHER'S AND MASKED LOVEBIRDS

It may be of interest to your members to hear that I am now in my second season with Fischer's and Masked Lovebirds, which I am flying at liberty.

The original pair homed to a flight 6 feet by 3 feet, bred four youngsters, who left the flight two days after leaving the nest, and were herded back by anxious parents towards the late afternoon. I now have nine with two pairs nesting, and I have heard of a further pair, which I thought to be lost, nesting in the eaves of a nearby house. The furthest distance which has been reported to me is two miles from their aviary, and due to their habit of continually calling on the wing, I have had numerous reports up to one mile, including a telephone call to say that three were sitting on the siren of the local fire station.

Their flight home is now very straight, and with purpose, and since I am moving house to about three miles away, I wonder if I can keep them to new quarters.

L. G. MIDDLETON.

CHURCHTOWN, LANCs.

“ MARKED WHITE ” ZEBRA FINCH

In the September-October issue of the *Avicultural Journal* there appears an article on the recent arrival at Keston of the Marked White Zebra Finch.

In his article Mr. Boosey has changed the name of the Australian bred Marked White Zebra Finch to the Chestnut-flanked Zebra Finch, yet he states that the name “ Marked White ” describes them tolerably well.

So as to keep names uniform it is suggested that the country of origin should be consulted as to the desirability of a change of name.

As this variety is well established in Australia, and is known throughout as the “ Marked White ”, a change of name now would only add to the confusion that already exists through the multiple naming of birds.

Wishing the *Avicultural Magazine* every success.

LEWIS M. CAMPBELL,
Hon. Secretary, Avicultural Society of Australia.

4 HAWTHORN GROVE,
HAWTHORN, E. 2,
VICTORIA, AUSTRALIA.

BREEDING OF ECLECTUS PARROT WITH ABNORMAL COLORATION

One very interesting bird which Sir Edward has bred, and that came out of the nest while I was away, is a hen Eclectus with a yellow and orange head. The wings and side feathers have the appearance of a patchwork quilt, some of the feathers having a normal maroon colour, whilst the other feathers have the appearance of being yellow mixed with maroon. The head of the bird, though mainly yellow and orange, also has a few flecks of red feathers in it. The hen Eclectus usually has a black bill, but with this bird it is noticed that there is quite a lot of yellow in the bill. The bird is strong and vigorous, although a little more timid than the usual young Eclectus.

Sir Edward hopes to photograph this bird in colour to enable him to check the colours as each moult takes place.

WALTER H. TURNER.

462-4 WILLOUGHBY ROAD,
WILLOUGHBY,
SYDNEY, AUSTRALIA.

MOUNTAIN BLUE ROBINS

The Blue Robins had five eggs in the first nest, and young hatched on 22nd June—cannot say how many, but judging by the vast quantity of live insects carried to the nest, and the excreta brought out by the old birds and “ dumped ” on the door frame (the same spot as used last year for this purpose), I should say there must be at least four lusty youngsters.

Although both parents are kept well occupied feeding this family, the cock has found time recently to encourage the hen to build a second nest, which she has now completed in a box in the flight, and I think she will be laying again in a day or so. I am a little disturbed by these “ rush tactics ” in case the second nest hatch before the first lot are independent. It would be amazing if the cock continued to feed the older family and the newly-hatched young at the same time.

K. A. NORRIS.

ELMSTONE,
HIGHFIELD ROAD,
PURLEY.

Later postscript.—The Blue Robins have four young on the wing and a further five eggs. One egg from the first nest was infertile and was thrown out into the soft ground. The Cedar Waxwing promptly “ adopted ” it and has been brooding it on the floor where it fell!

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NEW MEMBERS

The fourteen Candidates for Election in the May-June, 1954, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

CHANGES OF ADDRESS

- N. G. ALLISON, to Kingsmead, Cheyham Way, Cheam, Surrey.
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- B. BENEDICT, to 350 E. 52nd Street, New York 22, N.Y., U.S.A.
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- C. H. KEELING, F.Z.S., to "Pan's Garden", Ashover, nr. Chesterfield, Derbyshire.
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- E. G. SHORNEY, to 40 Ruislip Road, Greenford, Middx.
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	£	s.	d.
W. BIRD	1	2	0
W. L. EAVES	1	2	0
Captain C. SCOTT-HOPKINS	1	2	0

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The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Moustache Parrakeet hen.—V. J. LUCAS, Park House, West Rasen, Market Rasen, Lincs.

AVICULTURAL MAGAZINE, 1925 and 1927.—J. H. REAY, Cranmore, The Close, Hillingdon, Middx.

One pair of Cuban Finches, in breeding condition : must have been bred by an owner able to give their exact age.—Mrs. W. M. MATTHEWS, Glandore, New Park Road, Cranleigh, Surrey.

FOR SALE

1954 nest of six Golden-mantled Rosella Parrakeets for sale to outside flights only ; £48.—L. G. MIDDLETON, Stack House, Old Green Lane, Garstang, Lancs.

Hand-reared Barrow's Golden-eye, Mandarin, and other species Ducks.—C. T. DALGETY, Radwell Mill, Baldock, Herts.

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AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

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THE AVICULTURAL MAGAZINE

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G. M. HENRY

CEYLON BLUE MAGPIE.

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SEPTEMBER-OCTOBER, 1954

THE CEYLON BLUE MAGPIE

Cissa ornata (Wagler)

By G. M. HENRY (Church Enstone, Oxon, England)

This bird is confined to Ceylon, its relatives of the same genus being found no nearer than the Himalayas and Indo-Malayan countries ; it is therefore an interesting example of discontinuous distribution. In the pear-shaped island of Ceylon a great mountain massif, rising to 8,000 feet, occupies the centre of the southern half. Owing to the action of the monsoon winds, the southern and western aspects of these mountains and their foothills receive a heavy and well-distributed rainfall (80 to 250 inches annually), and it is this wet zone which constitutes the habitat of the Blue Magpie ; it is found from a few hundred feet up to nearly the highest point in the Island. Unfortunately, during the last century, the demands of tea and rubber cultivation have depleted the once-extensive forests of this region, restricting the bird's range very severely.

A forest-loving bird, it usually dwells in small flocks of less than a dozen except in the breeding season, when pairs or solitary birds are frequently met with. It moves about a good deal, a flock seldom being found for many consecutive days in the same area. They keep in touch with each other by a great variety of loud calls, most of which have a harsh or rasping quality. Some of these are described in my notes as follows : " a ringing, metallic *crink*, *crink-rink* suggestive of jingling a gigantic bunch of keys " ; " *crak crak rak rak rak*—a loud, rasping sound " ; " a sharp, harsh *qui qui* " ; " *crikrak* " ; " *twiwi-craa*—a as in hat ". Besides these calls, low conversational notes—squeaks, croaks, chatterings, and sucking noises—are uttered by members of a feeding flock, and a solitary individual will express its feelings in a quaint subsong into which it introduces excellent imitations of the notes of other birds—the scream of the Serpent Eagle, rattle of the Scimitar Babbler, etc.—all in subdued tones.

The Blue Magpie feeds on both fruit and animal food, but much prefers the latter. It partakes of the fruit of *Freycinetia*, a small screw-

pine which clothes the tree-trunks in its haunts. Small vertebrates, such as lizards and tree-frogs, are eagerly sought, and many insects, of which beetles, tree-crickets, and caterpillars appear to be the favourites. Hairy caterpillars are methodically rubbed on mossy branches—presumably to divest them of stinging hairs—before being swallowed. In hunting it is very active and agile, searching foliage most thoroughly, and often adopting attitudes worthy of a tit in the process. All levels of the forest, from ground to tree-canopy, come within its purview.

The flight is rather weak and laboured; the beautiful, graduated tail is carried closed and strap-like, except in vol-planing when it is widely spread. In flying any distance, the bird tends to drop from its perch to within a few feet of the ground, rising again at the end of its flight.

Moulting takes place in August and September. The breeding season is in the early part of the year. The nest—which has seldom been found—is built in a well-concealed site among foliage near the top of a tree in jungle. It is built of twigs in the shape of a crow's nest, with a deep cavity lined with soft roots or "old man's beard" lichen; the latter abundantly festoons the trees of the mountain forests. The three to five eggs are described as pale greenish-blue or whitish, heavily mottled with grey and brown.

So far as I am aware, the only Ceylon Blue Magpie that has been kept in captivity was one given to me in September, 1943, by Mr. Ralph West with whom I was staying. His tea-estate in the mountains, 4–5,000 feet, was in the best area for *Cissa ornata* known to me. It was partly surrounded by virgin forest, and a stream—rapid and bouldery—traversing the estate was bordered on both sides by a strip of jungle. This belt of trees was a favourite resort of a flock of Blue Magpies and offered exceptionally favourable opportunities for watching them. Coolies working in the neighbouring tea-field found one amongst the tea bushes and managed to capture it by throwing a "cumbly" (coarse woollen blanket carried by every estate labourer) over it. In the process the bird lost its tail completely; it was in heavy moult about the head, thin, and generally in poor condition, but seemed uninjured and worth taking some trouble over. A tea-plucker's basket was soon fitted with a perch and sacking cover, and in it "Cissy" spent the next few days until she could be taken to Colombo where more spacious quarters were available. Her feeding presented some difficulties, and much time had to be devoted to hunting frogs and lizards, beetles and grasshoppers—for her appetite proved to be quite unimpaired by her adventures. Once installed in a large cage in Colombo she thrived, tamed quickly, grew a new tail, and became a delightful pet. She lived in captivity for three years, the last one in the Colombo Zoo at Dehiwela. The greater part of her domesticated life was spent at Jaffna in the north of the Island, in a climate very different from her natural

abode—hot, dry except for two or three months of the year, and at sea-level ; in spite of this she maintained, in general, excellent health. A holiday upcountry, however—contrary to expectations—gave her little pleasure ; she lost condition, and on returning to Jaffna, fell ill and got so low that her life was despaired of. Brandy and milk, administered at frequent intervals in tiny sips, eventually restored her to health. Normally her diet consisted of bread and milk, scraps of raw meat, lizards, grasshoppers, and fruit such as bananas and pawpaw. On one occasion, when she was sharing a large aviary with a peacock and a pair of Great Stone Plovers, her predatory nature revealed itself ; a Spotted Dove was unthinkingly introduced into the company and Cissy lost no time in pouncing on it ; only the promptest of action saving its life. Although, in the absence of companions of her own kind, she refrained from uttering the noisy calls above-mentioned, she indulged in the subsong during her afternoon siesta, including in it a beautiful imitation of the *chok chaw-choyik* of a distant Jungle-Cock, which she must have learnt in her native forests in her youth. She was fond of bathing, and always became lively and talkative in rainy weather which seemed to have a tonic effect.

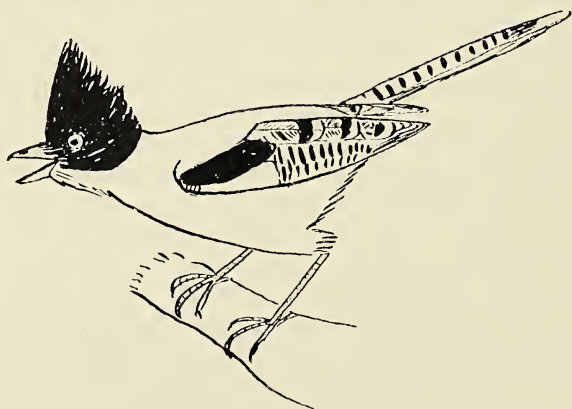
Although known as “ Cissy ”, and hereinbefore treated as of the sex appropriate to that name, no proof exists that “ she ” was indeed a hen ; the sexes are practically indistinguishable in this bird.

Regarding the “ expectation of life ” of the Ceylon Blue Magpie as a species, I am pessimistic. As already mentioned, the beautiful indigenous forests of the mountains and wet zone foothills are steadily being whittled away on one pretext or another, and are now but a pitiful fragment of their former extent. Protective laws exist for certain rare and beautiful birds, *Cissa* among them, but will and power to enforce them are absent, no real public opinion on such matters exists, and protective laws will be useless if the bird's essential habitat be destroyed. Reafforestation in the hills consists mostly of the replacement of primeval forest with plantations of exotic trees—eucalypts, acacias, and conifers—which offer no harbourage to any of the more interesting of Ceylon's endemic species. It is true that “ Wild-life Sanctuaries ” and “ Strict Natural Reserves ” exist—and look very well on paper—but they are neither sufficiently extensive nor sacrosanct to ensure the survival of a relict fauna. Unless the remains of the natural hill forests are rigorously preserved, both from official exploitation and the insidious process of illicit sapling-cutting and firewood stealing, I have personally no doubt that a very few generations hence will see this beautiful bird—and several other species which inhabit the same area—added to the sorry list of birds lost to our posterity by man's greed, lack of foresight, and thoughtlessness.

LANCEOLATED JAYS BREEDING IN CAPTIVITY

By DEREK GOODWIN (Virginia Water, Surrey, England)

These notes are, in part, a continuation of my previous article (Goodwin, 1953) to which readers are referred for descriptions of the appearance, behaviour, and display of the species. The Spring of 1953 found me with only four Lanceolated Jays, the males Green and Yellow (birds are named according to colour of their rings), and the females Blue and White. The female Red got out in February and soon vanished, probably having been killed by some predator. Of the four remaining, the male Green is, and was, the tamest; he is very steady, has little fear of strange people, and will freely perform all his innate behaviour patterns within a few feet of me. At one time he was subordinate to Yellow, but since he gained dominance over him in June, 1952, he has retained it. Yellow is less tame and rather more jumpy and nervous. The female White is the shyest of all, but even she will behave quite normally within a couple of yards of me if I am still or moving quietly. Blue, in contrast to the others, who are all splendid specimens of their kind, is rather small and dingy in colour. She has what seems to be the garruline equivalent of that captious self-assertiveness that is apt to be correlated with sub-average stature in another species of vertebrate. She is quite as tame as Green, in the sense that she will come as near to me, but is very prone to take alarm, or offence, and to start scolding.



♀ SCOLDING.

She invariably does this if I look into any bush or tree in the aviary, and even to glance towards a possible nesting site or to search the ground vegetation for Partridges' nests will often elicit her harsh screams of disapproval. The others usually ignore this hysterical behaviour, although if she is particularly excited her cries and gestures

will sometimes evoke a similar, but less intense, response in them. I can only assume that she does this because such behaviour on my part "suggests" a nest- or roost-seeking predator to her, although if so it is rather strange that it should extend even to ground vegetation in which the species would be most unlikely ever to breed or sleep.

All four birds spent the winter of 1952-53 in an outdoor aviary about 30 feet by 20 feet by 8 feet high. The only shelter consisted of roofing felt, covering certain parts of the roof under which were strategically arranged perches, but although freely availing themselves of these by day the Jays all preferred to roost among the foliage of two Cupressus trees. In early March it became apparent that Blue, instead of pairing with Yellow, had set her cap at the "married" male Green. He showed no Macheathian embarrassment at the presence of two rivals for his favours, and when in courtship-feeding mood bestowed his gifts on whichever hen happened to be nearest. As soon as I realized the state of affairs I moved Yellow and Blue to a slightly smaller aviary some way—but not far enough—away. Green and White displayed and indulged in courtship-feeding throughout the Spring, but showed no serious nesting behaviour. This I think was White's fault, as her mate began a nest, which never got beyond the foundation stage, and I feel sure he would have built properly had the female shown interest.

Yellow also started a nest which was never completed. So far as I could see he and Blue were never really paired. At odd times one of them would make sexual advances towards the other, sometimes very fervently, but they never seemed to reach any sort of mutual "rapprochement". I think this was probably due to Blue's matrimonial ambitions still being centred on Green, whom she could, unfortunately, both see and hear.

When they started to moult the four were reunited in the large aviary, where they remained until early April, 1954. Once again the two hens had both bestowed their favours on Green. Blue was the dominant female, and had begun to make occasional attacks on her rival. This she was most prone to do, not when White was being paid attentions by the male, but immediately after she herself had been fed by him. In view of White's record, I decided to leave Blue with the favoured male, thinking that, poorish specimen though she was by comparison, she could hardly prove *worse* than White had done so far as reproduction was concerned.

On 18th April I moved Yellow and White to an aviary only a few feet away. This was done in the expectation that if the birds were fairly close the display of any one would be seen by, and perhaps help to give reproductive stimulation to, those in the adjoining aviary. As will be seen, these expectations were fulfilled, though not in the manner hoped for. Blue and Green left together continued to indulge

in much courtship-feeding. Prior to this Green had carried odd twigs and fibres to various possible nest-sites and in one—a smallish wire-netting “nest-bowl” fixed high up (but lopsided) under the roof—had constructed a slight and very rough nest-foundation. Both birds, however, spent much time flying restlessly to and fro, due I feared rather to a desire to get out and seek a more congenial nesting place than to any innate urge to exercise their wings. On the 23rd I noticed to my great joy that a lot more sticks had been added to the nest. Progress on it evidently continued on the 24th, and on the 25th (a Sunday when I was at home) the birds spent most of the morning selecting fibrous roots and taking them to line the nest. To my surprise they both did this freely in my presence. Blue—who was then quite prepared to tolerate me in the aviary so long as I did not look at any “forbidden areas”—coming eagerly near to my feet to sort over the roots I threw down, in great contrast to the shyness which White had shown when nesting two years before.

Some more work was done on the nest that afternoon, but no further building was observed, and I think the nest was finished on the 25th. On the 26th and 27th Blue spent much time sitting on the nest, and Green frequently fed her there. On 29th April, Blue went on the nest at dawn, and sat for most of the day, coming off for a long period in the afternoon and several shorter spells. I thought she must have laid but when I felt in the nest at 9 a.m. on the 30th, it was empty. The horrible idea occurred to me that she might be laying an egg each morning, and then eating or hiding it. After some indecision, I decided to try to remove the next egg so as to save at least one of the clutch if my fears were justified. Next morning I flushed Blue at 8 a.m. (she sat very tight and once off mobbed me more vehemently than she ever had before) and took a fresh-laid egg from the nest. This I placed under my old hen Common Jay, who was then incubating her own eggs, replacing Blue's egg with a Common Jay's. Needless to say, all this created a great deal of “alarm and despondency” so far as Blue was concerned, but she returned to her nest and proved my suspicions of her false by having two intact eggs in her nest the following morning. It is interesting that she had had a sort of “dress rehearsal” for the laying of her eggs from at least two days before the first was in fact laid. It will be recalled, however, by those who read my previous article that the female White behaved in this way on the day prior to that on which she laid, as Common Jays also sometimes do.

Blue sat very tightly, coming off the nest to bathe, preen, and exercise just before dusk and also, usually for shorter spells, at other times during the day. Green fed her attentively both on and off the nest. Their behaviour was similar to that previously described (Goodwin, 1953) for Green and White, except that Blue, both before and during

incubation often received or solicited food with appeal calls, or the chirruping notes, and when she used the juvenile begging note she did so much less intensely. Green now showed the same animosity towards wild Jackdaws that my Common Jays always do when they have eggs or young, attacking them furiously through the wire whenever they alighted on the aviary. He spent much of his spare time "in communication" with the exiled White, reinforcing her conviction that she was his and his alone, to my great annoyance. But of this more anon.

To my sorrow the egg put under the Common Jay proved infertile as, presumably, were two of the three under Blue. On the evening of 10th May there were still three eggs in the nest, but at 7 a.m. on the 19th, one young one had just hatched. It was naked and hideous and so far as I could see in a very hurried look, it seemed slightly deeper pink in colour than a newly-hatched Common Jay. But this may have been imagination, since I did not risk a close inspection. With Blue's hysterical curses ringing in my ears, I beat a hasty retreat, fearing that I might already have done enough to cause disaster. If, as seems likely, the only fertile egg was the last of the clutch, then the incubation period is 16 days, about the same as in our native species. In this connection it might be mentioned that although the Lanceolated Jay is much smaller than the Common Jay, its egg is only slightly so. Indeed, only by closely comparing size plus the slight (individual) colour differences when the eggs were lying side by side on my hand, could I be sure "which was which" of the eggs in the mixed clutch I had manufactured. Blue sat very tight for several days after the young bird hatched. I only risked occasional quick glances, with the aid of a mirror, at the young bird when she was off the nest. This invariably aroused her to a frenzy of mobbing. Finally, on 1st June, she screwed her courage up to the point of actual physical attack, swooping from behind and striking the back of my head. This she repeated on most subsequent occasions when I entered the aviary. To my surprise Green showed no overt resentment of my presence. Particularly amusing was the way in which he would calmly continue gathering, preparing, and engorging food for the young one without the slightest sign of anxiety, whilst his mate was "yelling her head off". As is the case with the Common Jay (Goodwin, 1951) the male bird at first prepared all largish or hard-bodied insects (such as mealworms) by carefully pulling them to pieces and discarding the harder parts before engorging them, when he was feeding the young one, although he had taken no such trouble when merely feeding the hen on the nest. He took ant pupæ and mealworms readily, also cockchafers and some lean meat when the young one was a few days old (they were not offered before), but refused to take greenfly, small beetles, or centipedes. When given leafy branches,



♂ WITH FOOD FOR YOUNG IN GULLET.

he would at once fly to them and search eagerly for caterpillars. Since caterpillars were few but greenfly many, I had thought and hoped the latter might prove acceptable, but no matter how thick they were on the branches, he ignored them. On reflection it occurred to me that the only birds I have ever seen eating these insects—which, unlike most others, could be procured in any number without search or trouble—are the House Sparrow and the phylloscopine warblers.

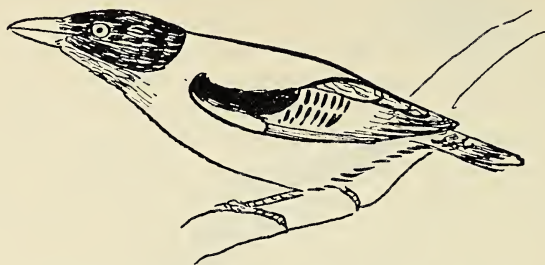
For safety's sake I indulged only in occasional and hurried looks



♀ BROODING YOUNG ONE 18 DAYS OLD.

at the young one. On 3rd June it was about half-feathered and lay in the nest, crouched immobile and gaping in fear in response to its mother's alarm cries. By this time my visits to the nest had resulted in Blue usually beginning to screech at me and to attack as soon as I entered the aviary. On 8th June the young one was fully feathered and was perched on the edge of the nest. For about a week previously Blue had spent much time off the nest, although still brooding the big youngster for about 50 per cent of the time and roosting on the nest at night. I think the young one first left the immediate vicinity of the nest on the morning of 11th June, when it was 23 days old. At 7 a.m. that morning it was hopping and scrambling about among some branches at the opposite end of the aviary. Green, like some anxious but rather incompetent human father in charge of a toddler, fussed nervously around it, oblivious of me, but Blue's only concern was the danger I represented and she mobbed me vehemently and unceasingly. Her behaviour was very similar to that recorded of the Beechey Jay (*Cyanolyca beecheyi*) when breeding in captivity (Sutcliffe, 1926). On the 12th the young bird was seen to be able to fly (with the usual rather fluttering and awkward flight of fledgeling passerines) from branch to branch without losing height. It returned to the nest edge to roost that night, and has done so since. This no doubt is due to its being a high and sheltered perch rather than to any innate tendency to use the nest for roosting after having once left it. At the moment of writing (15th June, 1954) the young bird is still spending most of its time in cover, although it can and does fly quite competently about the aviary. I think both parents are feeding it, although, owing no doubt to Blue's mistrust of me, I have only seen the male doing so. Unfortunately it is more influenced by its mother's warnings than by its father's indifference where I am concerned. It freezes as soon as Blue starts to screech, and when I approach it closely it hops and flutters away through the branches, using every time it pauses the same jerking "flight-intention" movements that an adult Jay does when mobbing. I am hoping that its present conviction that "mother knows best" will be ousted by experience to the contrary, as usually happens with juvenile *Homo sapiens*. Its hunger call is harsher, but at the same time higher-pitched than that of a young Common Jay, and as it is fed subsides into a similar eager gabble which is, I suppose, caused by the bird trying to call out and swallow at the same time.

The young one is a pale and rather dull edition of its parents, with shorter crest and the black and white markings on the secondaries less distinct. In one respect it differs from the specimens of juvenile *G. lanceolatus* in the British Museum. These all have the blue parts of the wings and tail of a pale bluish-grey, but in my bird they are of a similar azure blue as the adult. The skins in question are,



YOUNG BIRD (24 DAYS OLD) FREEZING ON PERCH.



YOUNG (25 DAYS OLD) ALARMED AND ABOUT TO FLEE.

however, all of older juveniles, and it is possible that the blue on my bird will fade to greyish later. On the other hand the food may affect the colouring. In the Common Jay unsuitable food may result in abnormal colouring of the juvenile plumage which is, however, in such cases always *duller* than the normal. Brightness of the blue parts seems to be a certain sign that food is suitable and feathering will be normal. My juvenile Lanceolated Jay shows every sign of being fit, and I take the brightness of its blue parts as a hopeful rather than a warning sign. Its bill and legs are a pale pinkish or fleshy grey instead of the grey of the adult. Its eyes appear a similar colour (dark brown), but I have not examined them at very close quarters. The skin of the eye-rims is paler and more conspicuous than in the adult, in which it is hardly visible.

Since the young one left the nest the pair have indulged in a good deal of courtship-feeding—although this never entirely dropped out—and Green displays a lot to his mate. He has shown signs of wishing to copulate, and has made frequent sudden attacks on Blue, which I think are caused by anger at his sexual impulses being thwarted.

Yellow and White in the other aviary have wasted the entire season. This was due primarily to White's faithfulness to Green. Despite barriers of wire netting and the constant sight and sound of her loved one bestowing his affections elsewhere, she remained

"True as the dial to the sun,

Although it be not shined upon "

to her first love and ignored or evaded Yellow's early tentative advances. Whenever she heard Green offering to feed Blue she would fly to the nearest point of her aviary, cling to the wire, and call imploringly to him. Often at the same time Yellow, prepared food in his gullet, would be flying back and forth vainly giving the food-offering call. Had White ever "asked" him to feed her, I have little doubt he would have responded gladly, but she never did. Green, as has been hinted, was largely responsible for this state of affairs. Although when Blue was with him he had time for no one else, whilst she was on the nest he did not scruple to seek feminine company elsewhere. In fact he spent the greater part of his ample spare time on the perch nearest to White's aviary, his notes and actions leaving neither her nor I in any doubt about his feelings towards her. The birds have now (17th June) begun to moult, so it is too late to hope for any last minute change of heart between White and Yellow.

This breeding season has certainly been a case of "third time lucky", although as Green and Blue have proved such exemplary parents, it is the more annoying that three of their four eggs should have been sterile. This was undoubtedly Blue's fault, as I repeatedly saw her sidle or fly away when Green wished to copulate. Presumably her physical reproductive processes were a little ahead of the psychological ones that should have kept time with them. The two presumably infertile eggs remained in the nest for at least five days, but had gone on the ninth day. Evidently this bird, like the Common Jay, does not remove intact eggs until the young are well grown. Probably in both cases the eggs are removed only subsequent to the young breaking them.

FOOD GIVEN TO THE YOUNG

Since my feeding methods seem to have been successful, I give them for what they are worth. This could no doubt be improved upon by anyone with more cash or leisure. For the first two days after hatching I fed the male bird with fresh ant larvæ and pupæ (*Formica rufa*) or mealworms or caterpillars, but mostly ant pupæ, every hour or so. Thereafter I had to be away from home most of the day, and the regime was as follows :—

5 a.m. Fresh ant pupæ (about a dessertspoonful) given to male.

5.30 a.m. Leafy branches, with caterpillars on them, strewn on

floor of aviary (the male always searched these eagerly, but owing to the poor crop of caterpillars locally, I think he seldom got more than four or five at most).

7 a.m. Dish filled with mealworms to last day.

7 p.m. Ant pupæ to male.

8 p.m. Ditto.

After the first three days cockchafers were sometimes substituted for ant pupæ at the early morning feed. Three or four times during the period that the young bird was in the nest I gave the male shreds of lean beef which he fed to it. He probably caught some insects for himself in the aviary, and at least once he caught a mouse. The non-insect foods on the adult Jays' menu—wholemeal bread, peanuts, sop, etc.—were also given to some extent, but they were not, I think, used for the young one, except perhaps as a stop-gap, at least up to the time of its leaving the nest.

NOTE.—The diagrammatic sketches are merely intended to give a general impression of the birds, and have no pretensions to accuracy of detail. Nor are they quite to scale.

PS.—Those with experience of the ill fortune that so often dogs the aviculturist will not be surprised to learn that the above story has an *unhappy* ending. On 21st June, the young bird seeming now past all likely mishap, I ventured to go away on a short holiday. When I returned on 1st July, I learned to my horror that the kind neighbour who looked after the Jays in my absence had found it dead that very morning. It had been fit and well the evening before, and when found had severe wounds on its head which had cracked the skull. Presumably an Owl or some other predator must somehow have managed to seize it through the wire. The only slight consolation is that it did not die of any illness that I might have forestalled had I been at home, and since the bird was in every way fit and active previously, there is no reason to think the regime was at fault.

As the old Norse saying has it :

One's enemies one can overcome,
God one can bribe,
But against bad luck no man can do anything.

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BREEDING OF GLOSSY BLACK COCKATOOS

By Sir EDWARD HALLSTROM (Willoughby, N.S.W., Australia)

The Glossy Black Cockatoo is the only Black Cockatoo that has proved really too difficult for the ordinary aviculturist or the amateur to raise from the baby stage after being taken from the nest. The feeding is so highly specialized that they gradually lose weight when given ordinary food. I had some failures until I commenced experimenting with matured birds to see if I could produce substitute food. It was no use putting food before them, they would starve themselves to death unless, of course, they were given food they were used to—the seed of the *Casuarina* tree. This is not easy, as for many years, particularly around Sydney, the wood of this particular tree (which burns with a great heat) has been used for bakers' ovens. Its use is now being replaced with newer methods of baking bread, but the inroads on the trees were so considerable that it was hard to locate the seed anywhere near to Sydney.

The seed is contained in a hard cone, and it is very difficult to extract it from the cone. Even when the seed has been extracted the birds will politely refuse to eat it—they must tear the cone to pieces themselves. This is tremendously important, as their mandibles have been especially designed by nature for dealing with the cones. If the birds do take to softer foods, such as sunflower seed, maize, etc., their top bill begins to extend, the bottom grows out in two long horns, and is very soon of no use to the bird whatever. It will be understood, therefore, that this was a real problem. As previously stated, in my experimental work I used matured birds, giving them just sufficient of the cones to keep their bills in trim, and fed them on a mixture of canary seed flour, plus peanut butter, and peanut oil. This was administered directly into the crop by means of a syringe and a rubber tube that was pushed down the throat. This could be accomplished with the greatest of ease provided, of course, one knew how to handle the bird.

My aim was to induce the creature to eat sunflower seed, or canary seed. Canary seed was useless, as it did not have sufficient oil, but the oily content of the sunflower seed made it more suitable. I calculated that if sunflower seed, plus some *Casuarina* nuts daily to keep their mandibles in trim, were used, it might be possible to keep these birds in captivity. The experiments were carried out over six years. Eventually a satisfactory method was found, and the birds now do well on the before-mentioned diet. Unfortunately, they cannot be tempted to eat any other type of food.

In my aviaries there are nine of these birds, and to feed them it is necessary for a man to drive, every day, into the country to gather

fresh nuts. Two separate aviaries were set up with a nice pair in each and suitable hollow logs were provided. One pair were noticed mating, but the other pair, although friendly, did not appear interested. Suddenly the latter pair produced one egg. Several days later another. The female sat closely, and in twenty-nine days hatched one chick. It was then noticed that the male was losing condition, and I am convinced that he had been starving himself in the feeding of the female who rarely emerged from the log. This really was a desperate position. After very careful observations, I decided to remove the male, and found he had really lost a lot of condition. It was necessary to recommence feeding him by injecting canary seed flour plus peanut oil directly into the crop. In a few days he was showing good progress, and was returned intermittently to the mother and youngster. It again appeared as though the double feeding was too much for him and although, at this stage, he had an ample supply of *Casuarina* cones, I found it necessary to remove him again.

At the moment of writing (1st June, 1954), the baby is over two weeks old and is being well cared for by the mother. The father, who is still separated from the female and the youngster, is now doing well again. A peep into the nest hollow this morning revealed a fluffy cream-coloured youngster about the size of one's closed fist. I am sure that this is the first time ever that one has been hatched in captivity. They are really a lovely bird, and I think it will be remembered in my talk in Sweden I described them as a Cockatoo which does not have a gizzard, similar to the other Black Cockatoos.

As feeding is so highly specialized and consists of a great amount of oil, it makes it most difficult to solve the problem of keeping them in captivity, let alone the successful nesting and producing of a youngster. From all appearances, the youngster is doing so well I am sure it will be successfully reared.

Additional note, 25th June.—The young Glossy Black Cockatoo is doing exceptionally well. It is in faultless condition (the mother having done all the feeding) and is now almost fully feathered and shows itself at the entrance to the nest. I did not return the male to his mate for fear of disturbing the progress the mother had made with the rearing of this singularly glorious youngster.

Further additional note, 20th August.—The Glossy Black Cockatoo has now left the nest, and is accompanying its mother to the food containers, and I should say has been successfully reared by the mother alone. The youngster has a considerable amount of down protruding through the now matured feathers on the head. The down is quite long and gives the bird an attractive appearance.

LONGEVITY IN PSITTACINE BIRDS

By W. C. OSMAN HILL (London, England)

In 1951 (AVICULTURAL MAGAZINE, 57, p. 37), I recorded an example of longevity in a Blue-fronted Amazon (*Amazona aestiva*). This individual, a male, had an authentic life of at least 50 years. Since then two other instances of aged Blue-fronts have come to my notice, and in one of them the history is as well evidenced as one ever hopes to get. Both far exceed my previous record. I give the protocols herewith :—

1. No. BP 269, male, received from owner 7th April, 1954 ; weight 292 gm. Last owner had kept the bird for 14 years and had published a note in *The Star* (1944) giving its age at that date as 87 years. Stated to have been in possession of immediate past owner for 42 years and in the same family before that for 37 years. Total 97 years. Post-mortem revealed the usual senile degenerative features.

2. No. BP 275, female, received from owner 21st July, 1954 ; weight 450 gm. Last owner had known the bird personally for 25 years, but it had been in his possession for only $9\frac{1}{2}$ years. It had previously been in the possession of his wife's aunt, who had kept it for 19 years. This lady had received it originally from an old lady of 80, to whom it had been given as a present when she was 10 years old. Total age of bird, if the history is reliable— $98\frac{1}{2}$ years.

The owner had subjected the bird to euthanasia on account of its progressive weakness and loss of appetite. Post-mortem revealed the usual cardio-vascular degenerations, together with an abscess in the basal lobe of the right lung.

It is interesting to note the close correspondence in the total period of captivity in these two birds. This possibly represents, within a year or so, the potential longevity for this species. If this is the case, then Flower's (1925) statement to the effect that " a parrot, under favourable circumstances, may live to 20 years, though certain individuals have been known to live for over 50 years " needs revision.

Flower's oldest psittacine bird with reliable documentation was a Greater Sulphur-crested Cockatoo (*Kakatoe galerita*) of 51 years, but Aspinall (1933) recorded a well authenticated example of the same species as being accidentally killed after 109 years in captivity. A traditional record of 137 years 10 months for the same species is given by Hamerton (1943).

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WOODPECKERS IN CAPTIVITY

By J. CARPENTIER

(Curator of Birds, Antwerp Zoo, Belgium)

Among the birds which generally cause a lot of trouble as far as the food is concerned, the Woodpeckers can certainly be mentioned first. Many aviculturists have indeed tried to keep these birds in good condition in captivity but, apart from a few exceptions, with very poor results. Although some fanciers have managed to keep one or more of these birds for some time, it cannot be said that they did so with entire success.

Now chance has brought us a way of feeding these birds, which up to the present has given us complete satisfaction, and therefore we wish to communicate this to our fellow-aviculturists, trusting that it will be of some use to them in taking care of their feathered pets.

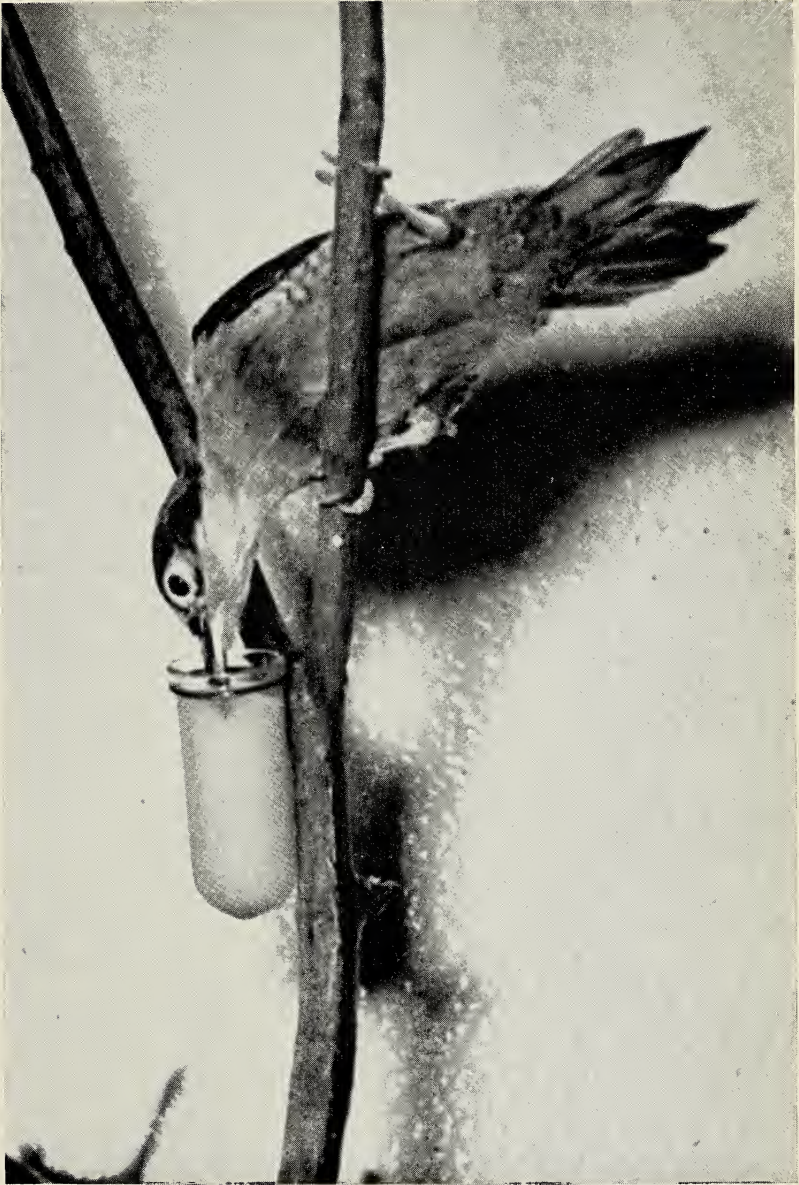
Early last year, we were informed that a sailor had brought from abroad a very beautiful, finely coloured bird, of which he knew neither the name nor the country of origin. It lived mainly on fruit (oranges and bananas), and some insects.

We hastened to have a look at the bird, and found that we had to do with a *Melanerpes flavifrons* (Vieillot), i.e. a Golden-fronted Woodpecker from Southern Brazil and Paraguay.

It was a rather lively bird, which did not seem to have suffered very much from the long voyage. We soon struck a bargain, and we were able to add this new species to our collection. The bird having come into our possession quite unexpectedly, we had not been able to prepare a suitable cage. So we were forced to house it provisionally in the cage of a couple of *Nectarinia famosa* (Lin.), in which we had quickly erected a fragment of a tree trunk, so that the bird could perch at ease.

After the arrival of the new guest, both it and the Sunbirds fluttered anxiously around the cage for a short while, but they very quickly settled down, and were visibly satisfied that each of them could go its own way without caring too much about its companions.

After having observed the Woodpecker for a couple of hours, during which time it swallowed some fifteen mealworms and pecked greedily at the orange, we left the birds to themselves, fully convinced that things were going as smoothly as could be expected. Next day everything was going on just as perfectly, but in the afternoon the keeper informed us that our Woodpecker was drinking the liquid food of the Sunbirds, i.e. the food of the Nectaridae. We were of course surprised, but the news pleased us enormously, because we hoped that this would be a way to give our new acquisition more varied food. We placed a few more drinking troughs in the cage, and awaited further developments with interest. After one week we were quite



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[Photograph : Antwerp Zoo

GOLDEN-FRONTED WOODPECKER TAKING LIQUID FOOD PROVIDED FOR
NECTARIDÆ.

[To face p. 166



[Alice Brookshnik

CUBAN AMAZONS.

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sure that the liquid food, intended for our Nectaridae, had also become the main food of the *M. flavifrons*. The bird is always quite ready to swallow some ten mealworms, but it completely disregards all fruit since it has tasted the Nectaridae food.

We have also tried this liquid food with a Hoopoe, and found that this species accepts it quite willingly as well, but does not consider it as its main food. Since we have given it our liquid mixture, the health of the bird has, however, considerably improved.

The birds are still in excellent health, and we should be glad to learn from other aviculturists whether they have already had some experience with liquid food.

Our liquid food for Nectaridae consists of:—Water, 1 litre; glucose, 75 grams; liquid honey, 120 grams; condensed milk, 75 grams; Mellin's food, 40 grams, and, every day, a knife-point of meat extract, every week a bit of charcoal mixed with the rest.

* * *

CUBAN AMAZON PARROT

(*Amazona leucocephala*)

By EDWARD BOOSEY (Keston, Kent, England)

The Cuban or White-fronted Amazon, although, before the parrot ban, the most frequently imported of the small group of Amazons having white or pink on the face and throat, and a rather dark green body colour is, nevertheless, a rare species in captivity.

It is a very handsome bird of a rich darkish green, yellowish on the tail-coverts. The forehead is white, while the cheeks, and a large but somewhat irregular patch on the throat, are of a beautiful deep coral pink. The feathers of the forepart of the body are bordered with black, the width of the borders increasing in the region of the head and neck and upper part of the breast. Behind the pink cheeks is an area of very dark slate grey. There is some wine colour on the abdomen and the tail is yellowish-green, the outer feathers having a large red patch near the base. The outer webs of the flights are rich Prussian blue. The bill is whitish and the legs oatmeal colour. Total length twelve inches or a little over. The bird has the appearance of being slightly smaller and slimmer than a Blue-front.

I do not find them particularly easy to sex, but I should say that hens have a slightly smaller and more irregular area of pink on the throat, but a rather larger and more extensive area of vinous on the abdomen.

During the brief period of the lifting of the parrot ban, we received six of these Amazons at the Keston Foreign Bird Farm. Two of them died—one from a fit, and the other through an accident—but the remaining four have done extremely well.

As I believe they have the reputation of being somewhat delicate, their aviary shelter was heated during their first winter. Since then, however, they have wintered successfully without heat, though it should perhaps be added that their aviary is in a very sheltered position, facing due south. Only during the winter months, however, are they shut into the shelter each night.

They are delightful aviary birds, being strong fliers, and altogether very lively and active. They are also very vocal, uttering both morning and evening a wonderful medley of typically Amazonian cries. These, however, while very attractive when heard from a distance out of doors, might prove rather deafening indoors, and this is one reason why I think these Amazons more suited to aviary than cage life.

If they have a disadvantage, it is that they are so terribly shy and wild.

For weeks they became completely panic-stricken if one went anywhere near their aviary, but now at last they have calmed down a bit, and one bold spirit—a male I think—will actually take a slice of apple from my fingers, watched apprehensively in the background by what I take to be his wife, who obviously considers it a most risky proceeding! The other two think it more prudent to retreat at once into the shelter, until all danger is past.

Cuban Amazons have a curious display which consists of the male thrusting forward and slightly lowering his wings, thus bringing into prominence the wonderful blue in the flights and, at the same time, making a sort of mock-serious token lunge at the female.

Their seed mixture should consist mainly of sunflower, with a few monkey nuts, and a little canary, groats, and hemp. Twice a week we give ours a few cubes of stale bread, previously soaked in sweetened, slightly watered milk. As to fruit and green food, Cubans are very fond of apple, and also of spinach beet, particularly the fleshy stalks of the Seacale variety.

They have the reputation of possessing but little aptitude for learning to talk.

As far as I know Cuban Amazons have never been bred in captivity, but there is a Continental record of the breeding of a hybrid between this species and a Blue-fronted Amazon.

The accompanying photograph of two of our Cubans at Keston was taken by my partner Mr. Brooksbank only with the greatest difficulty. At first, alarmed by the appearance of a camera in their aviary, none of them would stay still for a second. Eventually, however, after considerable patience on the part of the photographer, two of them remained still just long enough for this photograph to be taken.

THE COURTSHIP BEHAVIOUR OF THE CUTTHROAT FINCH

(*Amadina fasciata*)

By DESMOND MORRIS (Department of Zoology, University Museum,
Oxford, England).

INTRODUCTION

In the past birds have been classified largely on the basis of their structures and colours, but recently there has been a growing tendency to analyse the relationships between bird species by also making particular use of the specific behaviour patterns exhibited by them. The best conditions for behaviour studies of this sort are undoubtedly those in which large numbers of closely related species are kept in captivity in cages or, preferably, aviaries. For, as Konrad Lorenz (1954) has pointed out, when one is making a detailed inventory of all the specific behaviour actions of a number of species of birds, one has to live with them day after day over a long period of time. Lorenz has even gone so far as to say that "it is really impossible to gain the necessary knowledge by observing animals in the wild state". Many field ornithologists will disagree with this, but I feel that it depends on the type of study one is making. If, as Lorenz was doing with his ducks, you are studying a large number of closely related species, then the possibility of slight distortions of behaviour resulting from the conditions of captivity will only be a small disadvantage, for the time and labour involved in travelling all over the world to observe the many species in the group under investigation, would make such a study exceedingly difficult. If, on the other hand, you are making a detailed study of one species, then it is probably better to study it in its natural habitat, as Niko Tinbergen (1953) has done with the Herring Gull.

The earlier investigators, who were interested in classifying bird species, were able to carry out most of their work in museums, with hundreds of skins of birds arrayed on their desks. But they overlooked the fact that to classify living things on the basis of dead objects involves a serious omission!—namely, of course, BEHAVIOUR. Nowadays, as the result of the work of such pioneers as Heinroth, Whitman, and Lorenz, specific behaviour characters are treated with the same respect as structural characters, from this point of view. But although behaviour characters are thought of with respect to-day, there are, even so, too few actual investigations of this type made. This is probably because it is more difficult to observe, measure, and record a behaviour pattern than, say, a colour pattern. For this reason, a combined investigation has been planned, and already begun, to analyse the relationships of a group of birds using information obtained

from recording their structures, behaviour, genetics, and geographical and ecological distributions. When all this information is pieced together, the result, it is hoped, will give as clear a picture of their evolution as is possible.

Because the study of the behaviour of a large number of closely related bird species necessitates the use of a large number of aviaries, the choice of species for such a study is narrowed down immediately to very small birds—for spacial economy—and to species that are easily available. This leads inevitably to the Mannikins and Grass-finches, which breed readily in captivity and which have simple food requirements. The work that has been done so far has been concentrated on a few species, and now that this initial reconnaissance has proved successful, a much wider range of species is being obtained and investigated.

THE CUTTHROAT FINCH

One of the first species studied in the present investigation was the Cutthroat Finch. This species has been bred in captivity as long ago as the eighteenth century, and is particularly hardy. It occurs in East, West, and Central Africa, and is replaced in South Africa by a very closely related species, the Red-headed Finch (*Amadina erythrocephala*). Although these two species are at present classified with the Mannikin tribe (Amadinæ), they are rather different from the typical Mannikins. The male is very distinctly different from the female, whereas in all the typical Mannikins, the sexes are alike. Also the mottling of the light brown plumage is rather unlike that of other Mannikin species. A third difference is that the nestlings of the Cutthroat Finch do not exhibit the characteristic horseshoe-shaped marking inside the mouth. All Mannikins, in which nestling mouth-markings are known, possess the typical horseshoe-shape, but the Cutthroat nestling shows large blotches inside its mouth instead. These and other facts make the Cutthroat a particularly interesting species to study ; for, since it does not fit any too easily into its present taxonomic position, any new data concerning it may help to improve the way in which it is classified. In the present paper, however, I will confine myself more to a discussion of the displays which this species uses in its courtship behaviour, because until we know more about the behaviour of many of the Mannikin species, it will be impossible to make any statements about the possible evolution of the group. This stage has yet to be reached. In the meantime, it is very profitable to look at the courtship displays for their own sake.

THE SONG-AND-DANCE OF THE MALE

The male Cutthroat differs from the female in appearance by having, not only the famous "cut-throat", but also a dark brown

patch over the belly region. However, owing to the startling sex-difference provided by the red throat-patch, the brown belly-patch is seldom referred to. It is nevertheless important, in the display of the male to the female, immediately before copulation.

The male birds, when in full sexual condition, sing almost incessantly. During most of their singing, they pay no attention to the females, and do not orient themselves towards them. Throughout this singing, the heads of the males are swung smartly and distinctly from side to side.

In this species, as in several related ones, it has become quite clear that this song does not have the same function, nor, apparently, the same causation, as in many other kinds of birds. Typical song has the effect of intimidating rivals—warning them off a territory, or disputing a boundary—and of attracting females. It is primarily aggressive. In the Cutthroat, the song appears to have not the slightest threatening effect on other males, but, if anything, rather attracts them to the singer. Also variations in aggressiveness and singing seem to bear no relation to one another. This may be due to the distortion of life in captivity, or it may be due to the fact that all this group of birds have become semi-social and may nest together in close proximity under circumstances that would make ordinary song and territorial behaviour a hindrance.

Although song may be given by Cutthroats when several birds are sitting together in one part of an aviary, it is more likely to occur when a male is left alone, for example, when all the other birds are down on the ground feeding. In the case of the Java Sparrow (*Padda oryzivora*), which is also a member of the Amadinæ, I only ever heard a male sing when it was left alone by its mate. The Java Sparrow song was very infrequent, however, and it appears that as the frequency of singing increases, so the males may sing even when their mates are sitting next to them on a branch, although even under these circumstances it is still possible to detect that the song is more likely to occur when no other bird is close at hand.

In the case of the Cutthroat and its relatives, the song is also included as an almost non-stop accompaniment of the courtship dance of the male. This courtship singing differs from the type described above mainly in that the male now orients himself towards the female and specially directs the singing *at* her, instead of into space. As he sings, so he advances along the branch towards her. If she is unresponsive and does not intend to be mated with, she hops or flies away at this point. If she is moderately responsive, she remains still on the branch as the male advances, her feathers sleeked, ready for a quick take-off if necessary. If she is very responsive, she reacts to the song and dance of the male with an invitation display. If she gives this, it acts as a signal to the male that she is ready to copulate

with him. He responds by mounting her, their cloacae are brought into contact, and insemination takes place. The male then dismounts and usually both birds shake and preen themselves.

But what is the precise nature of the movements made by the displaying male as he dances to the female, and what exactly is the significance of the invitation display of the female? All too often, such displays are described simply as "comical antics". They are, however, much more than this to the birds concerned, being specific signals which indicate the mood of the individual performing them. Just as man-made signals, such as traffic-lights, must be quite precise and rigid, so that their meaning cannot be misconstrued, so it is found that animal signals are also quite fixed and rigid in form. In the evolution of a species, a particular display movement becomes uniquely associated with a special mood of the performer. Just as the green light of a traffic indicator means exclusively GO to the motorist, so the invitation display of the female means MOUNT to the male. Just as the green light signifies that the cross-roads are clear for the motorist to continue, so the invitation display of the female bird signifies that she is ready to be mounted and will not flee. The question remains as to why one type of display, rather than another, should be performed by any one species in any one instance. Before answering this it is necessary to describe the display of the Cutthroat in some detail.

THE INVERTED CURTSEY

As the male advances towards the female, he assumes an upright posture, which is much more vertical than his normal stationary pose. Also, his feathers are raised in a special way. Most of his feathers are somewhat raised, but his ventral feathers are not all raised to the same degree. Careful observation shows that the feathers in the ventral region are differentially raised in such a way as to exaggerate and enlarge the brown belly-patch to a maximum. This has the effect, viewing the bird frontally (as does the female Cutthroat), of displaying the brown patch efficiently during the advance. It is so swollen that the lower belly feathers reach down beyond the branch on which the male is standing. Seen sideways, the bird appears to have grossly over-eaten, there being a large brown swelling in the belly region! As the male advances in this posture down the branch towards the female, it gives a rapid series of dance movements every few hops it takes. It advances a little way, then, pausing, stretches and bends its legs very rapidly a number of times in quick succession. The body is held at the same, rather vertical, angle as it is raised and lowered, and the general effect has been likened, by certain authors, to the human curtsy. But a correction is necessary here, for the first element of a human curtsy is a *downward* one. The legs

start stretched and then bend and then straighten again. But the reverse is the case with the Cutthroat. It begins with its legs bent, straightens them, and then bends them again. Then, without pausing, it repeats this action a number of times in rapid succession. Then it stops dancing and hops nearer to the female, only to repeat the whole performance over again. Each little dance is therefore *a series of inverted curtseys*. But why should the dance take this particular form? By studying many such displays and movements, the general conclusion that has been arrived at is this. Animals often perform low intensity versions of activities which do not lead to the completed act, but which one can nevertheless recognize as being its first stage. For example, when a man gets up from an armchair he leans forward and places his hands on the arms of the chair and then rises. If one watches the whole action take place a number of times, it soon becomes clear, even if one only sees the man lean forward in the characteristic manner, that he intends to get up. Thus the first sign that he is going to get up is not actually seeing him rise, but seeing the *intention movements* of rising. Footballers and boxers, for example, make great use of the fact that human beings react very keenly to intention movements. For instance, a footballer pretends to kick the ball to the left and then, while his opponent is reacting to that intention movement, he kicks it to the right. Reactions to intention movements are very common in birds, and, in evolution, it appears that certain intention movements and the appropriate responses to them have become "fixed" as special inborn signals. Not only that, but they have also become modified—usually exaggerated in some way—and now have the quality of rituals. During this process of ritualization, the original intention movement, from which a signal has been formalized, is often obscured by the now wildly exaggerated version in which it is seen. But in the case of the Cutthroat, and in a number of other cases, ritualization has not gone so far as completely to mask the derivation of the display. For, if the dancing male Cutthroat is observed closely, it will be seen that the upward movement of each inverted curtsey is sharper, quicker, and more forceful than the downward movement. This can only mean one thing, namely that each series of inverted curtseys is a series of intention movements of jumping up, and as the male is facing the female, and, further, as the courtship ends with the male jumping on to the back of the female, the jumping up in this case must mean mounting. Therefore I interpret the dance of the male Cutthroat as a series of intention movements of mounting the female.

But why, in the first place, should the male have been making only intention movements to mount? There are two possible answers here. The first is that the sexual tendencies of the male may have been thwarted by the female refusing to give any indication of readiness

to be mounted. In his sexually aroused, but thwarted, condition, the male may then have kept on starting off the mounting action, but never quite completing it, until finally the female gave the invitation signal. It is easy to see how this situation could have evolved into the present one. Alternatively, there is considerable evidence that the male is afraid of approaching close to the female when he is courting her. His upright posture and his hesitant advance, for example, lead one to think of his mood as being basically a conflict between a sexual tendency to mount the female and at the same time a tendency to flee from her. The reason for the intention movements could, therefore, be that the male has to overcome his inclination to flee from the female.

This second explanation applies more clearly in a related species, the Zebra Finch, which I have studied in rather more detail. In this species, the male also performs a song and dance as he approaches the female, but, unlike the Cutthroat, he does not give the inverted curtsey dance, but a lateral pivoting dance instead. He swings his body from left to right as he advances, and as he does so, swings his tail round even farther than his body, so that it is displayed to the female. The male Zebra Finch also holds himself in an upright posture and shows signs of being hesitant in his advance towards the female. Each of the lateral swings of his body can be thought of as intention movements of turning away from the female to flee from her. The male turns away to the left as if to flee and then, his sexual tendency getting the upper hand, he swings back towards the female again. But this brings him closer to the female, and his tendency to flee increases again and he turns away to the right, and so on.

Specific differences, such as the one described above, between the dance-types of the male Cutthroat and the male Zebra Finch are very helpful indeed in determining the relationships between species. Work is going on at present to ascertain the dance-types of as many species of Mannikin and Grassfinch as possible. It must be stressed that a difference or similarity in such a behaviour character as dance-type is just as reliable for classifying the species concerned, as is the colour or marking of their plumage. In fact the two types of character are often related, as I hope to show below.

THE INVITATION DISPLAY

Returning for a moment to the display of the female Cutthroat; when the male has danced to her for some time, she may give the invitation display which consists of placing herself in a horizontal posture, couching low over the perch. She then proceeds to quiver her tail in a series of immensely rapid vibrations. They are so rapid that, until they have been filmed in slow motion, it will be impossible to analyse them fully. The main path of the vibrations, however,

appears to be a vertical one, but it is by no means as simple as that. I said earlier that sometimes movements become ritualized to such an extent that they are difficult, if not impossible, to relate to their origins. This female display is just such a case. It is, in fact, the most completely ritualized movement I have ever observed, and I can only guess at its origin. Tentatively, it can be suggested that this is a very rapid series of ritualized intention movements of fleeing, presumably prevented from developing into actual fleeing by the conflicting sexual tendency to remain near the male. In support of this, the female is in the horizontal posture typical of the take-off before leaving a branch. Also, flicking of the tail is often seen as part of the usual take-off intention movement.

Again, here is a problem which will probably best be solved by a wide comparative study of a number of related species, for there is quite a chance that some species will not have ritualized the action to such a degree and that its origin will then become clearer. Lorenz found this in many cases with his ducks. Unfortunately, all species of Mannikin and Grassfinch, in which I have observed the female invitation display so far, appear to be equally ritualized. (But there are many more species to be observed yet !)

THE DISPLAY MARKINGS

Finally, something must be said about the nature of the bright colours and vivid markings which are used in display.

It is dangerous for animals to be too conspicuous because it renders them too vulnerable to predation. Many animals are completely cryptic and show no bright colours or markings at all, but a number arrive at a compromise. They can be cryptic or conspicuous as the occasion demands. The one way of doing this is to possess a transformation display of some sort, such as the inflation of pouches, air-sacs, and the like, or to change colour during the breeding season, risking the danger of attracting predators only during that time of the year, in order to be conspicuous in display. The other way of compromising is to be cryptic over that area which the predator normally sees, and conspicuous over that area which the mate, or rival, normally sees. This latter method is the one adopted by all the Grassfinches and Mannikins. They are all cryptic from above, so that when a flying predator looks down at them from above, say, feeding on the ground, he cannot see them too clearly. All the Grassfinches and Mannikins, as far as I know, without exception possess back and wing plumage colour which merges with their natural environments. Their ventral surfaces, however, are a different question altogether. Here one finds bars, spots, bands, and patches of colour and intense contrast. These are displayed to the female by the courting males, and it is remarkable to note how frequently

the particular patch of colour or contrast, possessed by a particular species, is displayed so well by the special dance movements and posturings of that species. I will use the Cutthroat and the Zebra Finch as two excellent examples of this. The former has a *frontal* brown patch on its belly, and a *frontal* red patch on its throat. Its display is performed *facing* the female, and the male fluffs out its brown patch to the full, and then proceeds to shake it up and down at the female. In the case of the Zebra Finch, the male keeps on turning its sides to the female, and thus displays its white-spotted, chestnut-coloured, flank feathers, which, although normally carried inconspicuously inside its wings, are now fluffed outside them for the occasion. Also, the male displays its chestnut ear-patches, one after the other, as it pivots in front of the female. The twisting of its tail, through an angle which makes it clearer for the female to see, also displays a special marking, for the tail of the Zebra Finch is banded, with intense contrast, in black and white.

A study of many such correlations, between bright markings and display movements, has revealed that it is a general rule with animals ; and further, that it seems likely that the movement has preceded the colour in evolution. This is borne out by the fact that many species of a group often show a particular movement, but not all have developed a bright marking which can be displayed by it. It seems that when a particular organ, such as the tail, is moved about in display, any mutations which occur which make the tail of that species more conspicuous, will be strongly favoured, since they will draw, even more, the attention of the opposite sex to the displaying individual. It is unnecessary to mention in detail the bizarre extremes to which some species have taken this principle (Birds of Paradise, Pheasants, etc.). Most species do not go too far because, as stated above, predators as well as mates are likely to be attracted !

CONCLUSION

I have attempted to give some idea of the type of bird behaviour analysis that can and is being carried out using some of the commonest of aviary birds. This work is expanding rapidly at the moment and, as a result, it is hoped that when a greater number of species has been studied, both the interrelationships between the various species, and the organization of their reproductive behaviour systems, will be more clearly understood.

From the point of view of the classification of the group, the production of hybrids is of the utmost importance, in order to obtain some idea of their genetical make-up. Many Mannikin and/or Grassfinch hybrids are reported in the literature, but photographs of them are rare, and descriptions are often too brief to be of much use. It is hoped that, in the next few years, it will be possible to produce a large

variety of hybrids, with the aid of artificially increased day-lengths and, if necessary, injections of sex hormones. However, this will undoubtedly be a slow process, and it is also hoped to obtain valuable information from some of the many private breeders of these birds, who may already possess just those hybrids in which we are most interested.

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FOREIGN DOVES IN A DORSET GARDEN

By DOROTHY A. JAKOBSSON (Ferndown, Dorset, England)

The sadly neglected dove family contains many a bird of great beauty and loveliness. From the humble Barbary, with its laughing call, gentle coo, and sober Quaker-like dress, to the more exotically clad Green-wing with ruby bill and sparkling, vividly green plumage. The dainty little Harlequin's moth-like flight has a charm which must be seen to be believed—misty grey above and gleaming cinnamon beneath, and in the cock, the orange and red bill foiled by its black mask. The blue-grey, brown-flecked English Turtle-Dove's almost purring note harmonizing so wonderfully with the sharp pheasant-like call of the Vinaceous Turtle-Dove and the treble coos of the dainty little rosy pink Senegal and the Necklace Doves. The latter with its deep checkered collar and crimson ringed eye. How can anyone say that the dove's song is monotonous? Why, no two birds—even of the same species—coo exactly alike.

Last year, two of the fawn Barbarys gave me a little white nestling as a fellow to a fawn one. Also I believe I have an albino Barbary. The difference between them is that the first bird has the space-collar and yellow eye-ring of the "Java", while the second has no suspicion of a collar and a cream eye-ring with eyes that flash red in the sun's light. Also I was lucky enough to breed two Barbary × English Turtle hybrids.

Though perhaps few doves are brilliantly coloured (those which are, are outstandingly so), all have a soft harmony of colour that would be the envy of any dress designer and quite vies description with their soft merging and mingling.

All the above-mentioned birds live quite happily in eight unheated, grassed aviaries in a shrub planted plum orchard. The whole garden is very well sheltered by pines, rhododendrons, a privet hedge, and a gorse-topped turf bank, which does much to keep at bay keen winds.

There is also a largish goldfish pool, with pink and white water lilies, and tiny artificial stream.

The houses of the aviaries are made of tongued and grooved wood with heavy roofing felt on the roof, and on their north and east sides for extra protection.

The birds are mainly fed upon split maize, paddy rice, and millet, with sugar sprinkled bread and milk for all nesting Doves.

Rock salt somehow seems to increase the bloom on the bird's plumage, and tends to intensify the colour, and we feel it is absolutely necessary for the Green-wings. In their native home, I am told, they frequent the salt-licks and it is believed there they die if they are denied access to them for more than twenty-four hours.

As the doves are gathered from many countries, so are the trees and flowering shrubs which surround them, and do so much to provide a beautiful setting. The Bird Cherry blossoms beside the Indian Catalpa Bean, Canadian and Japanese Maples, are backed by the evergreens of Northern Europe, and the Liquidambers of America glow among the silver birches and oaks of England. Rhododendrons of many colours blossom in their appointed season. The wisteria of distant China clings and rambles among the branches of our native apple trees, one of which has mistletoe "in its hair".

Goldcrests nest in the cedars, Sparrows in the ivy and tits—of various kinds—in specially set-up nest boxes. Robins and Hedge-Sparrows are housekeeping in the gorse bank. A vent pipe has made a rather odd home for a pair of Starlings. Thrushes have reared a family high up on the rhododendrons. Blackbirds and the Green Woodpeckers, too, have nests somewhere in the garden. Brown squirrels gambol among the Scots pines where the Wood-Pigeons are nesting. A Nightingale, in summer, often sings in the apple tree beside the window, but they have not nested in the garden. We do wish they would!

The other day, when the doves were softly cooing, we were much amused to hear that a little girl visitor—staying in a nearby house—ran indoors calling out, "Auntie, Auntie, the lady over the hedge has a garden that's simply full of Cuckoos!"

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LONDON ZOO NOTES

By J. J. YEALLAND

An interesting and curiously coloured Plantain-eater, the Uganda Black-faced (*Crinifer personata leopoldi*), was brought back by Mr. Seago during July. It belongs to the sub-genus *Gymnoschizorhis* of which, as pointed out in recent correspondence, there are two forms. The body colour is of soft pale shades of grey and brownish-grey, the neck is white, and there is an incongruous looking patch of green on the breast.

A Varied Thrush (*Hesperocichla navia*) has been deposited. This and the Plantain-eater are new to the collection.

Presentations include a Martial Hawk Eagle (*Polymætus bellicosus*) ; three Squacco Herons (*Ardeola ralloides*) ; a Common Heron (*Ardea cinerea*) ; a Bank Myna (*Acridotheres ginginianus*), and fourteen Budgerigars, six of them trained " homing " birds from Mrs. Upton's flock.

Two Black-chinned Yuhinas (*Yuhina gularis*) ; five Green Imperial Fruit Pigeons (*Ducula ænea*) ; three Nicobar Pigeons (*Calænas nicobarica*), and a Narcissus Flycatcher (*Xanthopygia narcissina*) have been deposited.

Purchases consist of a One-wattled Cassowary (*Casuarus unappendiculatus*) ; a King Bird of Paradise (*Cicinnurus regius*) ; a Uganda Brown Parrot (*Poicephalus meyeri*), and twelve new Humming-birds—Ruby-crested, Stripe-breasted Star-throat, Pucheran's Emerald and Blue-chinned Sapphire.

A Lineated Finch (*Sporophila americana*) and an Abyssinian Lovebird (*Agapornis taranta*) have been received in exchange.

The birds so far bred in the Gardens include three Mallard × Red-crested Pochards ; four Red-crested Pochards ; seven Lady Amherst's Pheasants ; six Golden ; two Reeves' ; two Swinhoe's ; one Mongolian and a White-crested Kalij ; also a Ceylon Jungle Fowl ; two Crested Pigeons ; one Barred-shouldered Dove ; one Green-winged Dove ; three Chinese Painted Quail ; a Silver Gull and a Lesser Black-backed × Herring Gull. Last year's young of this " hybrid " were ringed so that we can observe the adult plumage.

Perhaps the most interesting nesting event was that of a pair of the Tawny Frogmouths in the Australian Collection. One egg was laid and it contained a chick which had died when nearly ready to hatch.

The breeding pair of King Penguins' egg was infertile. As is well known, these birds moult just before the breeding season and choice of mates is dependent upon the time that the individual birds moult. The breeding female preferred her old mate, though he did not moult until some time later than she, and it may have been that he was not ready to breed at the time the egg was laid. One of the new females also laid and the husband appeared to be the bird

bred here in 1952—at any rate, he took his turn at incubating the egg, but after a few days it was somehow broken. It could scarcely have been fertile, for observations at Edinburgh show that these Penguins do not breed until the fifth year.

The report that a young Green-winged King Parrakeet hatched at the Parrot House had been destroyed by vermin is incorrect. Mice have been exterminated, and the very few rats in the Gardens do not get into the parrakeet aviaries. The old breeding pair of Green-winged Kings have a fine young one which has just left the nest.

The “homing” Budgerigar aviary is now completed and contains some fifty birds.

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BRITISH AVICULTURISTS' CLUB

The forty-third meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 8th September, 1954, following a dinner at 7 p.m.

Chairman : Miss P. Barclay-Smith.

Members of the Club : Mrs. H. G. Alderson, W. D. Bell, Miss K. Bonner, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, A. H. D'Aeth, A. Ezra, Miss S. A. Fothergill, J. C. Garratt, H. J. Harman, Dr. E. Hindle, Miss S. I. Hobday, Major E. F. Housden, Mrs. H. Ingram, Miss E. M. Knobel, Miss M. H. Knobel-Harman, Dr. F. B. Lake, G. S. Mottershead, K. A. Norris, Miss E. G. Perry, A. A. Prestwich, D. M. Reid-Henry, R. C. J. Sawyer, D. Seth-Smith, E. N. T. Vane, H. Waller, C. H. Wastell, C. S. Webb, H. Wilmot, J. J. Yealland, O. H. Young.

Guest of the Club : Field-Marshal the Viscount Alanbrooke.

Guests : Dr. K. Aylwin-Gibson, J. Bailey, D. P. Bell, Mrs. W. D. Bell, Dr. F. Bernis, Senora C. Bernis, S. A. Croucher, Mrs. S. A. Croucher, W. J. C. Frost, Miss H. Gentry, W. E. Higham, H. Ingram, Mrs. F. B. Lake, J. Markham, Mrs. R. Maurice, Mrs. S. Murray, Mrs. J. A. Norris, R. S. Schwartz, Mrs. D. Seth-Smith, Mrs. H. Waller, Mrs. C. H. Wastell, Miss H. Wastell, W. A. Wood, Miss A. H. Young, Mrs. O. H. Young.

Members of the Club, 33 ; guests, 26 ; total, 59.

Walter Higham showed his recently completed coloured film, “Birds of the Scottish Highlands.” In this, typical Scottish birds such as the Dotterel, Ptarmigan, Greenshank, Capercaillie, Crested Tit, Red-throated and Black-throated Diver, and Slavonian Grebe, are shown. The Buzzard, Corncrake, Greyhen, Common Gull, Sandpiper, and other birds are dealt with ; and a visit is made to a colony of nesting Black-headed Gulls.

The most important part of the film, however, deals with the Golden Eagle. For many years Walter Higham visited the Highlands in search of eyries suitable for filming. At last, after fourteen years, he succeeded in finding two of very different types. One was built in a tree near the head of a glen, the other amidst rocks, high up on a mountain side. The result of this perseverance is a fine series of photographs of family life.

In thanking Walter Higham for showing his absorbingly interesting film the Chairman said the technical quality was well in keeping with the very high standard associated with this famous photographer. The audience showed by its sustained applause that it was in full agreement with this tribute.

The next meeting of the Club is on **10th November, 1954.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

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NEWS AND VIEWS

Last year Arthur Lamb bred a Blue-fronted Amazon \times Yellow-checked Parrot hybrid which has flourished. This year the parents have successfully reared two young ones.

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Sidney Porter's Malachite Sunbirds, mentioned in the last number of the Magazine, unfortunately did not succeed in hatching their eggs. One egg contained a young one dead in shell and the other was punctured.

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Post-mortem examination revealed that "Louisa", the Louisiana Pelican that recently died in St. James's Park, should have been named "Louis". Since 1951, of thirteen Pelicans to arrive, eight have died, two are in St. James's Park, and three at the Zoo.

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G. C. Lynch has bred two Purple Finch \times Greenfinch hybrids. It is perhaps a little remarkable that there is no record of the Purple Finch being bred in this country. There are hybrid records, and not good ones at that, of Purple Finch \times Canary and Scarlet Rosefinch \times Purple Finch.

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During the past few months several members have had cause to be grateful to the Society for the Waterfowl Ringing Scheme. The high

winds of recent months have enabled many birds with wings improperly clipped to become airborne. Use of the blue rings has been instrumental in the Police and R.S.P.C.A. returning some of these birds to their owners.

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Green-winged King Parrakeet—one young one has left the nest at the London Zoo. Jendaya Conure—Mrs. A. Morgan has a young one flying. Black-headed Conure—C. M. Payne's three young ones eventually left the nest. Canary-winged Parrakeet—E. N. T. Vane had a nest of four reared. Golden-mantled Rosella—L. G. Middleton, a nest of six reared; Allen Silver, a nest of four, and a second doing well. Quaker Parrakeet—London Zoo, five flying.

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Dr. Roger Tory Peterson (*National Geographic Magazine*, August, 1954) gives a very interesting account of the unassisted arrival and settlement of the Cattle Egret (*Bubulcus ibis*) in America. This Egret is a familiar sight in southern Spain, in Africa, and in the warmer parts of Asia. Some twenty years ago it appeared suddenly in South America. Just how it made the transatlantic flight and when is not known. The birds flourished and within twenty years the flocks have increased and spread, with the result that the species has now been seen in Florida, where as many as 152 have been counted, Virginia, Maryland, and other Atlantic Coast States; also in Newfoundland. This is a bird migration unprecedented in history.

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The AVICULTURAL MAGAZINE has now reached the venerable age of three score years. While rejoicing in this fact, we must not overlook a milestone in the existence of a journal with somewhat similar objects, namely *Foreign Birds*, formerly the News Bulletin of the Foreign Bird Exhibitors' League, now the magazine of the Foreign Bird League. The League was founded in March, 1933, and has thus "come of age". The prime mover in its foundation, Harold King, is still the guiding genius, being both Hon. Secretary and Editor, and it is due mainly to his efforts that it is in such a strong position. It is worthy of record that the President, Chairman, the majority of the principal officers, together with some three hundred members, are also members of the Avicultural Society.

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The Bailiff of Royal Parks reports the hatching of a Pink-footed Goose, on the Long Water, Kensington Gardens, on 18th July, 1954.

Credit for this breeding is due to our member, W. H. Punter. This is a somewhat uncommon event and the records are few. The Pink-footed bred for many years with Major P. Hammond, D.S.O., of Blakeney, Norfolk. Two of the young ones were given to W. H. St. Quintin, and from these young were bred at Scampston Hall, in 1924 and 1925. The Kensington Gardens' birds originally came from Peter Scott in 1947. In answer to our inquiry, Peter Scott said they have not yet succeeded in breeding the Pink-footed at Slimbridge. He also drew attention to the fact that Dr. John Berry has bred them annually for some years : so has a Mr. Williams, in Norfolk.

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The response to the request to members in arrears to bring their subscriptions up to date has been very good, but some members are apparently inclined to procrastinate. Please assist the Hon. Treasurer and the Society generally by keeping up to date.

A. A. P.

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REVIEWS

LA PERRUCHE ONDULÉE ET LES INSÉPARABLES (Budgerigars and Lovebirds). By M. LEGENDRE, with illustrations by L. DELAPCHIER. Editions N. Boubée & Cie. Paris, 1954. Price 500 francs.

In the preface to his book *Oiseaux de Cage*, which was reviewed in the May-June number, 1953, of the AVICULTURAL MAGAZINE, Monsieur Legendre stated that he hoped to deal with the Parrots and Doves, which were not included in that book, in later volumes. The book under review follows the same lines as its forerunner, and the first and larger half is devoted to Budgerigars. The opening chapter is an account of the original Budgerigar in Australia, and this is followed by chapters on the first importations, acclimatization in Europe, colour varieties, aviaries, bird-rooms and cages, feeding, breeding, taming, and illnesses.

The second part of the book, which deals with Lovebirds, opens with a description of the various species, after which there is a chapter containing general information. It is stated that the information given concerning the keeping of Budgerigars also applies very largely to Lovebirds, so the various points are not dealt with so fully as in the first section of the book. Details regarding the special needs of Lovebirds are given, and it is pointed out that some species are more sensitive to cold than Budgerigars, and attention is drawn to their

quarrelsomeness with other birds and even with other pairs of the same species. Full descriptions of nine species are then given, with details of their native haunts, first importations, requirements in captivity, and breeding. The final chapter is on hybrids.

The book is well illustrated with good photographs and two colour plates, one showing four varieties of Budgerigars and the other five species of Lovebirds. In addition, there are a number of line drawings, and diagrams showing the layout of aviaries. The book is dedicated to Monsieur Jean Delacour.

P. B-S.

EIN VOGELFREUND ZWISCHEN ZEITEN UND WELTEN

(The experiences of a bird-lover between two ages and in two worlds). By WILHELM KRACHT. Verlag Gottfried Helene, Pfungstadt-Darmstadt. Price 5.90 DM.

As Dr. J. Steinbacher says in his Introduction, this book is the story of the varied life of a man who is both an expert at bird keeping and a great bird-lover.

In the first chapter Wilhelm Kracht describes his early efforts at keeping and rearing birds in a small village in Westfahlen where no one had any knowledge of this art, and relates that the first bird he kept was a Blackbird. He gives a vivid description of the countryside and the life at that time—the last part of the nineteenth century—and concludes the chapter by giving a list of the different species of birds he kept. The author then describes his experiences in Paris where he had a post, and his first visit to the Paris bird market. His journeys then took him to Madrid where he again paints a word picture of the life and country, with particular attention to the birds he kept there. This is followed by an account of the time he spent in Berlin, his friendship with the Heinroths, and the many species of birds he kept in captivity. In 1913 he went to Odessa, where he states he reached the peak of bird keeping; he remained in Russia for six years and returned to Germany in 1918, where he lived in various towns, always keeping birds or maintaining his interest in some way, and finally settled in Freiburg. Wilhelm Kracht has lived during a period of great change and visited widely differing countries, and he writes vividly of his impressions, the life of the countries he has lived in, the interesting people he has met, and the many different species of birds he has kept, varying from small passerine birds to various species of Eagles. His book contains much interesting information gained from his own practical experiences.

P. B-S.

NOTES

THE EFFECT OF CLIMATIC CONDITIONS ON BREEDING RESULTS

It has long been the custom to associate inclement weather occurring in Spring and early Summer with low fertility in foreign birds' eggs—probably rightly, but is it as simple as that?

Naturally warmth and sunlight will have a more cheering effect on tropical and sub-tropical birds than will dull cool weather, but what is the extent of the physiological effect?

Bad weather seems a likely cause of a falling off of interest in nesting after early promise that so often happens, but in these cases no eggs are laid. The causes of infertility in birds' eggs must be many: there may be a lower concentration of sperms in cold weather, or, though fertilization might be adequate, activation of the germ does not take place or ceases at an early stage.

Spermatogenesis in domestic poultry is thought to be partly related to the length of daylight and by early April there are more than twelve hours of daylight.

Climatic conditions appear not to have any effect on the nesting of some birds. Black-footed Penguins breed in winter here; Cereopsis Geese usually nest in January; Hooded and Brown's Parrakeets in October, and Indian Ringnecks in March, so in these cases, at least, there seems to be some cyclical influence.

Then there are so often the exceptions. This year, for instance, Mikado Pheasants and Cape Teal have bred exceptionally well at Leckford and Turquoise Parrakeets, the most delicate of the Grass Parrakeets, have bred well at Keston.

Controlled experiments would be very difficult and expensive, but it would be interesting to see whether another ten degrees of warmth and some artificial sunlight supplied where practicable during the Spring made any appreciable difference.

J. J. YEALLAND.

* * *

CORRESPONDENCE

ARTICLES ON THE COMMONER BIRDS

When I first came in contact with the AVICULTURAL MAGAZINE, I read that it was a magazine for British and Foreign Birds. So far, I have only read of the higher priced foreign birds (with the exception of once, when Mr. Boosey gave an article on Zebra Finches). Would it not be possible to have more notes on the more common birds; we are not all millionaires, and while the more exotic birds make interesting reading for the richer people, they do not interest the common everyday working class. I would like to read more about the British birds and cheaper foreign finches, etc. There is very little in the Magazine to interest me at the present time, and I believe it would be of more interest to a lot of subscribers if articles such as I have just mentioned were more frequent. No offence now please; I'm just writing what I think.

GEO. FLAXMAN.

618 LAYARD ST.,
LONDON, ONT.
CANADA.

I entirely agree with the sentiments expressed in this letter, and am only too anxious to receive articles on the more common birds. It is quite a mistaken idea that because a bird is commonly kept in captivity there is nothing more of interest to write about it. When Mr. Delacour came to write his monumental work on Pheasants, he found a great lack of information regarding the Golden Pheasant, one of the most popular species kept in captivity. And with regard to ornithology in general, it is significant that though there have been monographs written on many of the rarer species, knowledge regarding the House Sparrow is lamentably small.—EDITOR.

MAGPIES AND SQUIRRELS AS MENACES TO AVICULTURE

Although they are pests, I had never thought of either the Magpie or the Grey Squirrel as actual avicultural menaces. Both, it is true, will frighten birds by running about on top of their aviary, but so will an innocent stray homing-pigeon that alights upon it.

I now know, however, that the presence of Magpies and Grey Squirrels gives cause for far greater anxiety.

The late Duke of Bedford's breeding pair of Blue Ringnecks hatched every egg and had four young ones in the nest. In the middle of May, however, when they were at the stage when they are only just starting to feather, but are too big to be brooded, the weather became more and more arctic every day, so, on looking in the nest-box, I was hardly surprised to find that the three youngest had died of cold. The fourth was better-clothed and eventually fledged successfully. It had, however, a habit of clinging on to the wire netting, and a few days later was found dead with a chest wound. The Magpies had been taking a great interest in it, and I have little doubt it was they who killed it by jabbing at it through the wire netting. Had it been murdered by its parents they would almost certainly have scalped it.

A pair of Roseate Cockatoos reared a fine brood of three, and not long after they fledged the feeding door was mysteriously found wide open, the birds, fortunately, being still in the aviary.

The button closing the feeding door was somewhat loose, and through a chink, the sunflower and monkey nuts could be seen from outside. A Grey Squirrel had frequently been seen in the vicinity and inspection of the aviary disclosed a mass of scabbings of its toe-nails on the woodwork, particularly round the feeding door. I think there is little doubt it had discovered that by turning the loose button, it could get inside and feed, particularly as on the day of the discovery of the open door not a scrap of food of any kind was left in the food vessel.

The door is now secured by a small bolt, and there has been no further trouble.

EDWARD BOOSEY.

BRAMBLETYE,
KESTON, KENT.

Since writing this I have actually seen the squirrel carefully examining the new door fastening so there is no doubt whatever that he was the culprit.

"MASKED WHITE" ZEBRA FINCH

We thought Chestnut-flanked White Zebra Finch a better name for the new variety, as ordinary Whites usually throw a proportion of young that are ticked or marked with grey. These, at any rate in this country, are quite often referred to as marked White Zebra Finches, and this might well cause confusion between them and the new variety.

EDWARD BOOSEY.

BRAMBLETYE,
KESTON, KENT.

* * *

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WANTED

Female Speckled Pigeon or South African Rock Pigeon.—DEREK GOODWIN, Toft, Monk's Road, Virginia Water, Surrey.

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Hand-reared Barrow's Golden-eye, Mandarin, and other species Ducks.—C. T. DALGETY, Radwell Mill, Baldock, Herts.

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A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

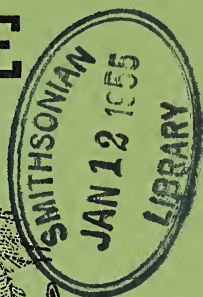
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AVICULTURAL MAGAZINE



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RED-BELLIED CONURE.

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AND THE AVICULTURAL SOCIETY OF AMERICA

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NOVEMBER-DECEMBER, 1954

RED-BELLIED CONURE

(*Pyrrhura frontalis frontalis*)

By A. A. PRESTWICH (Southgate, England)

François Levaillant (1801) depicted a parrakeet he considered a new species under the name *La Perruche Ara à bandeau rouge*. Shaw (1811) gave it the scientific name *Psittacus vittatus* and vernacular Banded Parrakeet ; and Latham (1822) similarly called it the Banded Parrot.

Vieillot (1817) bestowed its present specific name when he described it as *La Perruche à bandeau rouge*, *Psittacus frontalis*. (By rules of priority, *Psittacus vittatus* Shaw (1811) is antedated by *P. vittatus* Bodd. (1783).)

Peters (1937) gives the distribution as "Southeastern Brazil from eastern Minas Geraës and Espirito Santo to Rio de Janeiro".

As usual, very little has been written about this Conure in the wild state. One of very few writers, J. F. Hamilton (1871), describing a small collection of birds made in the south of Brazil in the spring of 1869, says : "Very common. I met them frequently in the neighbourhood of maize-plantations, on which they commit great havoc. Along the São-Paulo railroad flocks were frequently seen flying overhead." Not very enlightening ! But then field-collectors rarely are.

Possibly the first of this species to arrive in this country were the two purchased for the London Zoological Gardens in May, 1869 ; five were purchased in June, 1883, since when there have, of course, been others in the Collection.

D. Seth-Smith (1926) says : "I am informed that some of these Conures were offered for sale in London in 1898 ; and three specimens, two males and one female, were obtained by the writer on August 24th, 1903."

During the past fifty years just a few have been imported from time to time, wars and parrot ban permitting, and in 1924 a pair owned by W. Shore-Baily successfully reared a nest of four young ones, for which event the Society's Medal was awarded.

In July, 1952, several pairs reached England, and three pairs were

obtained for the “*Darenth-Hulme*” collection. One pair successfully reared three young ones last year, and the flock at present numbers seven, one adult and one young one having died during the winter.

This charming Conure has also been bred in France, 1919, Mme Lécallier, and 1920, Jean Delacour: Japan, 1928, Prince Taka-Tsukasa: Australia, 1952, Sir Edward Hallstrom: and Denmark, 1953, J. Dalborg-Johansen.

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* * *

A REMEDY FOR AIRPLANE WING

By CONSTANCE NICE (Chicago, Ill., U.S.A.)

In the summer of 1954, at the Delta Waterfowl Research Station, Delta, Manitoba, where my mother and I have spent several seasons raising young marsh birds from the egg to study their behaviour and development, I was asked by Dr. Martin Moynihan to look at one of his young Franklin's Gulls, because its right primary joint had started to turn out.

On examining both wings I discovered that the primary pin feathers were just starting to develop, and that the affected bone was noticeably more flexible than the normal one.

I told him what I had been told by Peter Ward, the head of the duck hatchery, and by two zoo men, that the underlying cause of the weakened condition of the developing bones was some unknown deficiency in the diet. I thought, however, that the immediate cause of the twisting of the joint was the weight of the developing primaries, and suggested that if the joint were taped into the correct position it might grow normally.

(The year before, when the wings of one of our hand-raised Franklin's Gulls were constantly slipping down, I had put them in the wing pockets several times, telling the young bird kindly but firmly to keep them there. The next day and from then on the gull carried her wings properly. I had been equally successful this summer with the only hatchery raised Blue gosling, although it was not particularly

tame. I think that these young birds, without close association with adults of their species, had never happened to discover the proper and comfortable adult method of holding their wings, but almost immediately adopted it when shown.)

Dr. Moynihan taped the joint into position with ordinary Scotch tape, just before putting all the young gulls to bed in the dark. Starting the next day, the joint was held in the correct position. He found this method completely successful on his two or three gulls whose primary joints had turned out.

It did not matter whether they were taped as soon as he noticed the condition or two or three days later, or whether the bird was able to remove the tape very quickly, or whether it stayed on for several hours. Sometimes he had to apply the tape for two or three nights over a period of several days before the bird held its wings normally.

In the case of our hand-raised Sora Rail, whose primaries were already at least half an inch long, I taped both her wings off and on over a period of a week. However, it was not till the last time that I observed her brothers and sisters carefully and tucked her growing primaries as far under her secondaries as they were holding theirs. The next day and thenceforward the Sora held her wings correctly.

Also on Peter Ward's advice, Dr. Moynihan immediately bought a vitamin-mineral supplement, Polynutrin, and sprinkled it on the birds' food. None of the younger birds showed any indication of developing airplane wings.

We never taped the wing to the body, but just the primary in the proper position under the secondaries, and always removed the Scotch tape some time the next day, holding on to the feathers under the tape to try to keep from pulling them out or tweaking them. The birds often lost a few small feathers, but this did not spoil their appearance.

Whether taping the wings of a bird whose primaries had developed further would bend the joint into its proper position, and whether the bird would then hold it so, I have no idea.

In September, 1954, Dr. Konrad Lorenz told me that he treated airplane wing by making a roll of Scotch tape with the sticky side out, and putting the upper side under the secondaries and sticking the sheaths of the developing primary pinfeathers on to the lower side of the roll, so the primaries were held in the correct position. The tape was left in place until it dropped off with the feather sheaths.

This method should be less annoying to the birds than having the tape wrapped around the outside of their wings, and it certainly would be less trouble to have to tape the wing only once.

NOTES ON FERAL PIGEONS

By DEREK GOODWIN (Virginia Water, Surrey, England)

The Pigeon (*Columba livia*) is among the commonest of birds in British towns, as well as elsewhere throughout most of the temperate and tropical regions of the world. Ornithologists have, however, tended to ignore this species wherever its populations were derived from or interbred with domestic stock. Finn (1921) in his book on London's birds, included it under the name "Common Pigeon", a very apt one, as this bird is *the* Pigeon of the layman. Unfortunately, Fitter (1945) used the name "London Pigeon" and later he and Richardson (1952) misleadingly applied it to all feral pigeons, irrespective of locality or origin. Naumann (1833) gave a most interesting and detailed account of the status and habits of feral, dovescote, and domestic pigeons in Germany, and Darwin (1859 and 1868) dealt with the appearance and distribution of dovescote and domestic pigeons throughout the world. The present paper deals chiefly with observations on feral birds, but some notes on wild birds are included, and most of the behaviour patterns described are, of course, common to all members of the species.

The following terms will be used to designate different categories of *Columba livia* :—

Rock-Pigeons—wild populations of *C. livia*.

Dovescote Pigeons—pigeons nesting or roosting in dovescotes, pigeon-towers, barns, etc., exploited by their "owners" for food (young pigeons) or dung, but not selectively bred or confined in any way, and not usually fed by their owners.

Feral Pigeons—pigeons living in a free and ownerless state, but which have originated from Dovescote or Domestic Pigeons.

Domestic Pigeons.—Pigeons kept under a greater degree of control subject to selective breeding by man and fed by him.

Homing Pigeons.—Any domestic pigeons kept and bred for their ability to return home when released at a distance. Such birds are usually subjected to rigid control and selection by man, and regularly fed. The breed now used for this purpose in Britain (and elsewhere) is known as the Racing Pigeon or Racing Homer. The Carrier Pigeon is a purely fancy breed, and has been so for at least two centuries.

Flying Pigeons.—Any domestic pigeons kept for the entertainment they afford their owners by their flying when liberated. This may consist of height and duration of flight (tipplers, cumulets), or aberrant forms of flight (tumblers, rollers, sharpshooters). Many fancy breeds have been derived from Flying Pigeons, and still bear the same names. (For example : Long-faced and Short-faced Tumblers,

Exhibition Flying Homers, and Show Homers.) These breeds are subject to control and selection, and are usually kept closely confined except when liberated to perform.

Fancy Pigeons.—Domestic Pigeons of any of the numerous breeds and sub-breeds that are kept and bred solely for their appearance and to conform with some artificial "standard of excellence". Many of these birds are monstrosities, incapable of feeding their own young owing to their abnormal skull and bill structure.

Pigeon.—The species *C. livia*, where the remarks made apply equally to wild, feral, or non-monstrous domestic birds.

The Origin of Feral Pigeons.

That all Domestic and Dovecote Pigeons owe their origin to the Rock Pigeon (*Columba livia*) and to no other species is fully established (Darwin, 1868). I have met many ornithologists and pigeon-fanciers who doubted this fact, but none has any valid evidence to the contrary. Fertile hybrids have been produced between *C. livia* and some other species of *Columba* (notably and rather surprisingly, the Woodpigeon (*C. palumbus*) among them), but the domestic breeds show no trace of such hybrid ancestry. Where they differ most from the Rock-Pigeon they differ equally from all other wild species. That the markings or structural developments of some Domestic Pigeons show similarity to those of certain wild species not even con-generic with them is of no significance in this respect (see Darwin, 1868).

The existence of clearly differentiated breeds of Domestic Pigeons dates back at least to Roman times (Darwin, 1868), but the practice of keeping, or rather exploiting, Dovecote Pigeons has, at any rate until recently, been practised on a far larger scale than the breeding of domestic varieties. Such Dovecote Pigeons were (and usually still are) very similar to Rock-Pigeons in type. In England and Western Europe (and doubtless elsewhere) they were mostly either of the natural blue colour or "blue chequers", "dark blue chequers", or "velvets", that is birds showing varying degrees of melanism resulting in the wing-coverts being spotted with black on a grey ground, predominantly black with some blue-grey spotting or completely black. There is some likelihood that "chequered" birds may occur among wild Rock-Pigeons (Darwin, 1868, Petersen à Botni and Williamson, 1949), but no proof, as such birds have always been observed in areas where it is possible that feral or domestic birds could, at some time, have interbred with the wild ones. Conversely, of course, it is only in such places that the occurrence of aberrant specimens is likely to be noticed.

The Feral Pigeons of most parts of the old world appear to have been derived originally from Dovecote Pigeons that strayed to find homes for themselves, with a slight admixture of strayed or lost

Domestic Pigeons. Of the latter, only such as approximated to a Wild Pigeon in form and ability would have survived *and successfully reared progeny*. Hence the general similarity of Feral Pigeons to Rock Pigeons rather than to the various Fancy Pigeons is because, for the most part, they are descended from birds equally like the wild stock. There is no need to postulate some hypothetical and semi-mystical "reversion to the wild type". In the past century, and more especially in the last fifty years or so, the widespread popularity of pigeon-racing has had an enormous effect on the feral population of Britain. Homing Pigeons get lost in large numbers during training and racing. Most of them are physically capable of getting their own living and many which appear psychologically incapable of fending for themselves in the fields are able to adapt to the more directly parasitic role of "town pigeon". In Britain (as in many other parts of western Europe), the resultant constant influx of lost Homing Pigeons has coincided with a widespread elimination of Dovecote Pigeons by man, and with continued periodic destruction by him of large sections of the feral population. Because of this the Feral Pigeons in many places are now predominantly of Homing Pigeon type.

As was pointed out by Darwin (1868), Dovecote Pigeons normally show characteristics in common with the Rock Pigeons of the same geographical area, particularly as to the colour (white or grey) of the rump. Hartert (1912-1921) considered Domestic Pigeons to have originated separately in various places from different sub-species of Rock-Pigeon. This is doubtful. It is known that many of our Flying, Homing, and Fancy Pigeons were first brought to Europe from the Middle East or India, and it is likely that such breeds as were "made" in the west were derived from these already domesticated birds rather than from pristine wild stock. Dovecote Pigeons may have been derived independently from local wild stock. On the other hand, their resemblances to the local Rock-Pigeons might be due to interbreeding with them, or to similar environmental influences being at work on the Dovecote Pigeons as on the wild ones.

Sociability and Segregation of Populations.

In all its activities that are not purely reproductive, the Pigeon is gregarious. It does, however, like most social birds, defend its roosting perch and an area around the nest which varies in size according to circumstances. For a detailed account of sexual and aggressive behaviour see Heinroth (1943). This sociability is not simply a matter of many birds wishing to exploit good feeding, bathing, or resting places at the same time. The lone Pigeon will actively seek a companion to rest near. A good example was given by a female in my possession, which I hand-reared after it had fallen from its nest. When it began to fly about it soon discovered some Barbary Doves

(*Streptopelia risoria*) in one of my aviaries. Previously it had spent most of its spare time in a shed where it roosted, or in an adjacent garage. After finding the doves it did all its day-time resting and preening perched above them on the wire roof of their aviary. If they were not in the open part, but in the shelter, the Pigeon rested on a ledge outside their shelter window, through which it could see them. This Pigeon is blue, its parents were a blue and a blue chequer. It had never in its life seen a Pigeon of similar colour to these doves, yet it evidently recognized them (? by shape and movement) as "the nearest thing". It was not at that period reacting sexually to the doves, but regarded me as its mate, and left them to seek my company whenever I appeared.

That Feral and Domestic Pigeons interbreed in many cases with Rock-Pigeons is familiar to all, since it is mentioned, often emphasized, in most accounts of the species. The far more interesting fact that in many places there is very little interbreeding—relative to the apparent opportunities for it—between Feral, Dovecote, and Rock-Pigeons on one hand and Domestic Pigeons on the other has received little attention, although it was remarked upon (Adams, 1864) briefly nearly a century ago. This is very noticeable in the Nile Delta, where the Dovecote and Feral Pigeons are very similar to the local Rock-Pigeons (*C. livia schimperi*), but the Domestic Pigeons are mostly much larger and white, pied, or red in colour. Such relative segregation may arise, partly through birds tending to pair with those in the same colony (though I know no proof of any such tendency), partly through human interference, but also partly, I think, through the preferences of the birds themselves. It is known that in many species of pigeons and other birds, recognition of their own kind is not innate, but occurs through the young bird identifying itself with the creature which has reared it and/or with which it has been reared. This is probably true for *C. livia*. It is certainly a fact that the young Pigeon will often show a strong preference to pair with another similar in appearance to those which reared it, or among which it spent its early days. Such preference may be most striking in members of the more unusually coloured domestic breeds and is generally thought to be due to their being "instinctively" drawn to their own aberrant kind. It is, however, a result of "imprinting"; such birds only show this trait if they have been reared by, and spent their youth with, pigeons like themselves.

Thus whenever the majority of Domestic Pigeons differ appreciably in appearance from the majority of Feral (or Rock or Dovecote) Pigeons it is likely that barriers to interbreeding arising from differences in ecology will be reinforced by the acquired mating preferences of the birds. In countries, such as Britain, where the keeping and racing of Homing Pigeons is practised on a large scale,

the situation is very different. Here thousands of lost Homing Pigeons are scattered widely throughout the country every spring and summer. The vast majority of those which survive join other Domestic Pigeons or Feral Pigeons in towns, but presumably some join cliff-dwelling Feral or Rock-Pigeons. A lost Homing Pigeon that joined a flock of Rock-Pigeons would perforce have to accept one of these as a mate.

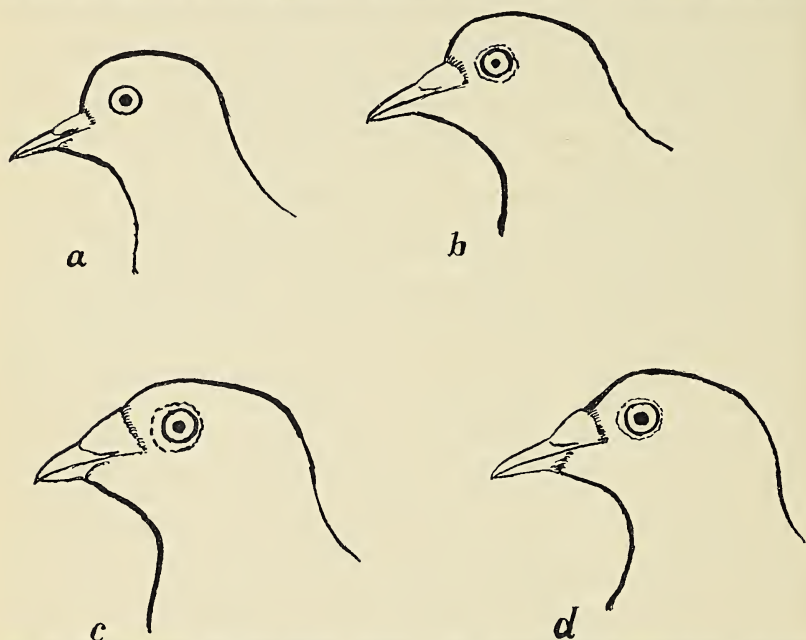


FIG. 1.—Heads of (a) Rock Pigeon (male); (b) Typical Feral Pigeon from London (male); (c) Typical Homing Pigeon (male); (d) Typical Homing Pigeon (female).

Since it would be used to seeing companions of this colour—among others—it would have no aversions to so doing. Apart from colour (which in many is identical with or similar to that of the Rock-Pigeon), a Racing Homer differs from the wild form being larger, having a proportionately heavier bill, larger cere (called “wattle” by pigeon-fanciers) and more bare skin (“cere” of pigeon-fanciers) round the eyes. It is unlikely that these differences would deter a Rock-Pigeon from pairing with a Homing Pigeon, at least if the latter were blue or blue-chequer in colour. Indeed, it is conceivable that if the Rock-Pigeon were the female and the Homing Pigeon the male, their differences in size and head proportions might be mutually attractive rather than otherwise. The difference between them being, in effect, an exaggeration of the normal sexual dimorphism, which is slight in the Rock Pigeon but more pronounced in most strains of Homing Pigeons.

Despite its theoretical probability, however, there seem to be few actual records of mixed pairs of Rock and Feral Pigeons. In a brief trip to the Shetlands last June, I saw apparently pure Rock-Pigeons within a mile of Feral Pigeons that showed no trace of wild intermixture. Mr. W. B. Alexander informs me that he suspects that small groups of Rock-Pigeons still exist in some of the Yorkshire and Welsh cliffs, maintaining their purity in spite of the large Feral Pigeon populations in the same areas. It is quite possible that where Rock-Pigeons have been replaced by Feral Pigeons this has been achieved through their "going under" in competition with the latter rather than extensive interbreeding between them. For example, safe rain-proof nest-sites may often be scarce. Where this is the case a pair that can obtain and hold such a site will, in the course of a very few years, rear many more young to independence than will a dozen other pairs that are forced to "make do" with inferior nesting places.

Some Local British Populations.

In some instances these observations are little more than impressions based on brief visits of only a day or two. They are in such cases offered very tentatively rather to stimulate further investigation than for any other reason. The dates and duration for which such populations have been under intermittent observations are given in brackets.

Inner London (1936-1940 and 1947-1954).—Here the Pigeons show every intergradation between a small minority almost if not quite identical in type with the wild form and a much larger minority which, although unringed, are to all appearances pure Homing Pigeons. The majority are about mid-way between these two extremes, but inclining to Homing Pigeon rather than otherwise. On the whole the smaller Dovecote Pigeon types are more numerous in the most central districts, suggesting that the influx or establishment of lost Homing Pigeons has been greatest in the peripheral areas. I have never seen a ringed bird ("first generation homer") among the small parties, pairs or singletons that one finds busily *searching* for food in back streets, railway stations, etc., and hardly ever failed to spot one or more in any flock waiting to be fed in a park or square.

I have dealt elsewhere (Goodwin, 1952) with the colour-varieties of London's pigeons, but must emphasize here that there is no correlation between colour and type. Homing Pigeons, or for that matter Fantails, may be identical in colour with wild birds.

Windsor.—Most, if not all are of Homing Pigeon type, some individuals are, however, rather neater and smaller than most Homing Pigeons, and may represent Dovecote Pigeon origin.

Scarborough (April, 1940-June, 1940, and November, 1945).—In 1940 there were about a dozen birds of Homing Pigeon type living in the castle ruin on top of the cliff. When I returned in 1945 the colony

had increased to at least two hundred, probably many more. These birds fed inland during the day and returned during the afternoon and evening to roost on the cliff ledges. Most of the roosting places offered little shelter and I saw no pigeons entering any of the holes or crevices, all of which seemed to be owned and defended by Jackdaws. All the pigeons seen at close quarters were Homing Pigeons or their immediate descendants.

Bristol (September, 1953, and May, 1953, two days only).—Here, as in London, I got the impression of stocks derived from a Dovecote Pigeon nucleus, now in process of being swamped out by Homing Pigeons. A small colony near the station were largely of Dovecote Pigeon type, had they been a little smaller one or two of the blues could have passed for Rock Pigeons. Most other birds seen were, however, close or identical to Homing Pigeons, and ringed birds were plentiful.

Lerwick (June, 1954, two days).—The many Pigeons I saw in the streets and about the dock were of Homing Pigeon type. About half were racers bearing rings. Most of these appeared to be having a hard time, and their tails had been pulled out. About a dozen pairs of Pigeons were nesting in some boxes fixed to an old barge not far from the harbour. These were of mixed Dovecote Pigeon and Homing Pigeon type. None of the birds showed any signs of inter-breeding with wild stock, and there were no aberrant birds among the Rock Pigeons I saw on Noss and Bressay near by. I did, however, see a blue Pigeon and a black pied flying together below the cliffs a short distance from Lerwick, but was not close enough to see whether the former was a Rock Pigeon or a blue Homing Pigeon. Lerwick is a major liberation point for pigeon-fanciers who fly "the north road", so that there is likely to be a constant addition of Homing Pigeons to the local population.

Predators and Competitors.

There can be little doubt that the most important non-human predators of adult Rock-Pigeons are falcons, particularly or perhaps mainly the Peregrine (*Falco peregrinus*). I have never seen Rock or Feral Pigeons attacked by falcons, but I have seen a good many pursuits of Homing Pigeons by the Lanner (*Falco biarmicus*) in Egypt. The Lanners are hardly so swift or strong as Peregrines, and I think they were usually attracted because the circling of our "nomad" Pigeons, about a basket in the desert, suggested an exhausted or injured bird to them. When pursued the Pigeon would usually fly low and swift, jinking slightly sideways or downwards at the moment that the Falcon struck or attempted to seize it. The Lanner invariably missed at its initial stoop, and then would sometimes rise for another attempt, but more often would chase the Pigeon in swift, low flight. Often the Lanner on overtaking the Pigeon would appear to fly right

over it. This, I think, was due to the Pigeon swerving downwards at the critical moment. The Lanners seemed unable or unwilling to keep hold of the Pigeon, as often the latter would be knocked to earth two or three times, yet finally escape. The chase commonly ended with the Pigeon managing to return and dive under the army truck or between our feet. When chased by a falcon, Homing Pigeons—which are usually very hesitant about entering any strange enclosed place—will dive headlong into any hole or shelter that offers. A few would dodge the stoops and circle upwards, trying to gain height. I imagine these tactics would prove fatal with a Peregrine, and they perhaps represent an abnormal response by domesticated birds. It is, however, amazing how stereotyped and perfect the escaping tactics usually are. I remember well my astonishment on seeing a young Homing Pigeon that had only been on the wing a few weeks and had never seen a falcon before, fleeing and dodging in typical manner as though it had practised escaping from falcons every day of its life.

These escaping movements are also used by the Pigeon when pursued by Sparrows. Both the House and Spanish Sparrows (*Passer domesticus* and *P. hispaniolensis*) have a habit of chasing pigeons and other large birds. The sparrow flies surprisingly fast close at the Pigeon's side, as if trying to peck it under the wing. The Pigeon behaves similarly to when chased by a falcon except that it does not go into shelter, thereby indicating that it is not so frightened as it appears to be. Cats, owls, Snapping Turtles, and various other creatures have been recorded as taking Rock or Feral Pigeons, but I have little or no personal experience of these predators in relation to them.

In towns, such as London, where they rely largely on bread given by the public, Feral Pigeons suffer much from the competition of other birds. They cannot carry off bread as a passerine or gull will do, nor can they swallow large lumps like a gull or duck, or easily peck them to pieces like a crow. The annual influx of wintering Black-headed Gulls greatly reduces the amount of food available to London's pigeons.

To what extent Feral Pigeons living in the country—and Rock-Pigeons—suffer from food competition from other species is unknown. One would think that both the Rook (*Corvus frugilegus*) and the Jackdaw (*Corvus monedula*) might exercise a considerable influence, as these species also feed largely on grain. The Wood Pigeon (*Columba palumbus*) is probably not a serious competitor since although fond of grain and weed-seeds when these are available in quantity, at other times it relies largely on acorns, nuts, berries, and greenstuff. The Stock-Dove (*Columba oenas*), however, appears to feed not only on the same fields, but actually on the same foodstuffs as country-living Feral Pigeons do. Much detailed and careful work will have to be done before it can be ascertained if, and to what extent, the two

species compete, but it seems at least possible that the remarkable increase of the Stock-Dove in Britain and western Europe during the past hundred years is not unconnected with the contemporary decrease in the numbers of Rock and Dovecote Pigeons. It would be interesting to know if there is any region where Rock-Pigeons and Stock-Doves are both plentiful, and if so whether they there share the same feeding grounds and compete for the same foods.

Relationship with Man.

Most Feral Pigeons are dependent on man-made buildings for their nesting and roosting sites. Man's reaction to their presence ranges from welcoming them as guests or even as sacred birds, as in many Buddhist and Muslem communities, to active dislike and attempts to destroy them in many western countries. In Britain and America the slight disfigurement of buildings by the birds nests and droppings is considered to justify their destruction.* Such destruction is usually of a sporadic or haphazard nature, undertaken by officialdom against the wishes of the majority of people. In London, at any rate, it has no permanent effect, the periodic mass destruction merely encouraging a higher breeding success in the survivors. As with man, so with the Pigeon, it usually happens that the fewer the number of individuals in any given area, the higher the standard of living which each enjoys. In country districts Feral Pigeons (and Domestic ones too !) may be shot for sport or to protect crops. They are, however, often spared by sportsmen who do not wish to risk shooting domestic birds. Most unfortunately Rock-Pigeons breeding in natural sites do not share this relative immunity. Many British pigeon-fanciers have a great dislike of Feral Pigeons, particularly if they approach Rock-Pigeons in appearance. Such men kill every ownerless Pigeon that comes into their lofts, and often deliberately decoy them down for this purpose.

Man destroys many of the Pigeon's natural enemies in his own interests, real or supposed. It seems likely, however, that even if he gave such enemies a free hand, the Feral Pigeons would show only slight diminution of numbers, and this would consist for the most part of inexperienced juveniles and birds suffering from disease, malnutrition, or injury. These latter often drag out a miserable existence for months or even years in districts—such as inner London—where predators are rare.

Much of the food of "town" Pigeons is deliberately given to them by man. Thus the subjective feelings of pity, friendliness, or compassion which they evoke in man (or woman) is of the utmost biological importance to them. The relative slowness of peristalsis in this species,

* Since I wrote the above, I have seen an American journal that concerns itself largely with bird-protection of a sentimental nature, carrying advertisements for a contrivance designed to cripple any Pigeon or other "unwanted" bird alighting on it !

and the resultant posturings as the hungry bird with gullet over-full (but crop and stomach probably empty) endeavours to avoid having to throw up some of the swallowed food (see sketch) often makes the superficial observer consider them as extremely "greedy". As a result of this, and perhaps also of official anti-pigeon propaganda,



FIG. 2.—Hungry Pigeon with gullet crammed but crop empty.

some of the people who feed the birds in London's parks make every endeavour to prevent the Pigeons obtaining any of their bounty. Even in country districts, Feral Pigeons are largely dependent, albeit indirectly, on man, since most of their feeding grounds are produced by his activities. The same is true to some extent of Rock-Pigeons. A study of the feeding ecology of Rock-Pigeons in areas where they do not use man-made feeding grounds would be of utmost interest.

Feeding Ecology.

From this aspect Feral Pigeons can be roughly grouped into two main classes; those feeding in the countryside and those feeding inside towns. In their feeding habits the first group do not differ from such Dovecote Pigeons or Rock-Pigeons as may be getting their living in the same area. Feral Pigeons dwelling in cliffs, ruined buildings (in the country), old barns, quarries, and similar places get their food outside the towns, but the converse is not always true. In some towns all or part of the Pigeon population may fly out into the surrounding country to feed, returning to roost and nest on the buildings. The same individuals may—though not very commonly—feed both inside the town's streets and in the surrounding fields.

Food is sought on the ground. Pigeons normally alight to look for food only where the earth is either bare or covered only with short or scanty vegetation. Cultivated land, particularly arable fields and stubbles, is usually chosen where available. Fields of hay and corn are visited as soon as they have been cut, but the birds do not often settle among standing corn, as does the Wood-Pigeon (*Columba palumbus*). They may come into stackyards and about farm buildings, particularly if Domestic Pigeons are kept there. They may even under certain circumstances (Naumann, 1833) feed in woodlands on the fallen seeds of conifers and other trees. Exceptionally they may feed

in trees on growing buds or berries. This I have only seen in Kensington Gardens, but it has also (Szemere, 1948) been recorded in Hungary. This is probably an acquired habit which perhaps originated by a bird which had perched in a tree to rest, observing a Wood-Pigeon or some other bird feeding.

Besides seeds of many kinds, some of the more quiescent forms of animal life are also taken, particularly small snails. Cultivated grain (especially wheat) and pulse and the seeds of vetches are favourite foods. In Kensington Gardens they habitually search for and eat such acorns as are, or can be, broken up. Naumann (1833) observed Pigeons swallowing whole acorns. This I have never seen, and all my efforts to get the Kensington Garden birds to do so have been in vain. That they are perfectly capable, physically, of swallowing and digesting small whole acorns I have proved by feeding them to a young one that I was hand-rearing, whilst it was still at the stage when it would blindly swallow anything I put into its mouth. For a comprehensive list of foods taken by Feral and Dovecote Pigeons in Germany and by Rock-Pigeons in Scotland, the reader is referred to Naumann (1833) and Macgillivray (1837).

Feral Pigeons living in towns often, and in England usually, feed inside the town itself. Some natural food is obtained from exposed earth or grass plots in parks and gardens, but the greater part consists, as a rule, of bread or other artificial food which is given to them by the public, or obtained by scavenging. Large numbers congregate in parks and squares where they are regularly fed. Others seek food in the roads, railway stations, dockyards, and so forth. Grain spilled from horses' nose-bags once constituted an important food source, but owing to the decline in horse-traffic it is now a negligible one in most places. Bread is usually the staple food, since being cheaper it is given in greater quantity than any other, but grain, pulse, peanuts, or cheese are always taken in preference except by individuals that have not learnt that these substances are edible. Cooked meat, fat, bacon rind, apple, potato, chocolate, and other sweetmeats are also eaten, at least by some individuals. The need for lime, especially by breeding birds, prompts them to eat the mortar from buildings. This they can only do where it is already sufficiently loose and crumbled for their weak bills to detach pieces of suitable size. The popular idea, largely spread by professional pigeon-killers with an axe to grind, that they are capable of harming sound buildings in this way is, of course, ludicrous.

Feeding Behaviour and Recognition of Food.

It would be of great interest to know to what extent (1) likely feeding grounds, and (2) food, are recognized innately. Normally the young Pigeon follows older birds to the feeding areas. Similarly adult birds

are often attracted to new feeding grounds by seeing other pigeons flying to or alighting on them. In any flock there are usually experienced birds who will probably "recollect" previous experience at sight of a new-cut stubble, new-sown cornfield, or other man-made feeding ground. A pigeon usually remembers any place where it has found food and returns to it again next time it is hungry. It seems that, in the absence of the greater stimulus of experienced birds going elsewhere, Pigeons instinctively alight on relatively bare ground and away from the immediate vicinity of trees when seeking food. It seems certain that they have an innate tendency to go to the ground when hungry, for hand-reared young ones *that have never been fed at ground level* will do so if left without food. Probably nobody would have thought of putting food for pigeons in the many barren town squares where they are fed, had not hungry birds first alighted in them to search for food.

Pigeons feeding in open country commonly set off for their feeding grounds in flocks, although they may do so singly or in the company of only one or two others. They usually fly fairly low, and on arriving at the feeding ground alight either at once or after some preliminary circling. This latter hesitation is due to the birds being somewhat afraid to alight or undecided exactly where to do so. It is not a deliberate attempt to make sure that no enemy is concealed near by.

Such hesitation is seldom shown if the birds are very familiar with the feeding place, or if there are other Pigeons already feeding there. Once on the ground the birds walk about rapidly with heads down, peering closely as they go, and stopping or turning aside to pick up anything edible they see. In loose friable earth, leaf-mould, chaff, etc., pigeons (all species of *Columba* and *Streptopelia* whose feeding behaviour is known as well as the present species) will search for buried seeds by turning over the substrate with their bills. The bird uses a quick sideways flicking movement of the head, whereby some of the loose earth is thrown to one side. Although less like the normal movement of picking up food, and hence one might suppose more specialized, this movement does not seem any more efficient than the "pecking with closed bill" of gallinaceous birds. Pigeons do not often dig in this manner except where they have already found some grains or have been accustomed to find them.

Homing Pigeons and Flying Pigeons that are allowed their liberty frequently go into the fields to feed in spite of regular and plentiful supplies of food. This habit most often starts when they are feeding young. They are generally believed—probably correctly—to do so in search of snails and other animal food. If this is so, it suggests an innate urge to seek such foods—which are not normally sought after—even though the diet supplied is sufficient to rear apparently perfect young. Any reader who keeps Homing Pigeons which have not

hitherto "gone fielding" could make valuable observations by noting full details about its first occurrence, where the birds first alight, and what appeared to induce them to do so.

Pigeons feed by preference mostly on seeds, which are swallowed whole. There would seem to be no possibility of a sense of taste in any way similar to our own, giving the bird clues as to the edibility of new objects. Adult pigeons make no attempt to "show" food to their offspring at any stage. The method of parental feeding does not enable the young one to see the food it swallows, and under normal conditions the young pigeon does not appear actively to seek food until the parents have ceased to feed it.

A young Pigeon will, if hungry, and if no creature from whom it is accustomed to be fed is within sight, commence to peck at all sorts



FIG. 3.—Starving "squeaker" beginning to feed.

of small objects that contrast to some degree with the substrate. These are picked up, held a moment in the tip of the bill, and dropped again. If some edible seeds, such as grains of wheat or dari, are found, the bird will almost invariably eat them. The first grain to be eaten will, however, be picked up and dropped again many times before it is finally swallowed. The second will be taken with much less hesitation, and the third—if the young Pigeon is really very hungry—probably with none at all. Whatever items are first swallowed will, at this first meal, be taken exclusively until they are all gone. This behaviour does not seem to be on quite the same plane of trial and error as the feeding of young game-bird chicks, since the young Pigeon does not usually swallow inedible substances. It may indeed refuse—even though starving—to eat many palatable foods at this stage.

If other Pigeons are present when the young one first starts to feed itself, its behaviour is somewhat different. It shows interest the moment it sees another Pigeon pick up food. The young bird at once runs to it, looks eagerly when it pecks again, and tries—always

unsuccessfully—to take the morsel from the other's bill tip at the moment it is picked up. This will be repeated again and again (perhaps interspersed with vain but frantic outbursts of food-begging), and one has the impression that the young one "knows" that the morsel actually taken by the old bird must be edible, but does not realize that other similar grains, over which it may be treading as it tries to seize the one in its unwitting mentor's bill, are equally so. Suddenly (perhaps as a result of clearly seeing the actual morsel the other picked up) realization comes, and the young Pigeon starts to eat, usually with much less hesitation over the first grain than it would have shown had it been "learning to feed" alone. None of the hesitation shown by the young Pigeon at this stage is due to insufficient maturation of the innate feeding movements. In a natural or feral state the young one does not feed itself until after it can fly well, and has left the nest. It can, however, as every pigeon-keeper knows, be taught to eat freely long before it can fly, by placing a supply of corn beside the nest, so that it constantly sees its parents feeding themselves. Also adult Pigeons confronted with some food new to them behave in the same manner except that they are—other things being equal—usually "quicker on the uptake". There is much individual variation in the speed of both adults and young when "learning" new foods.

Pigeons do not learn to eat bread so readily as they will seeds. Nevertheless, they soon do so if they are famishing and other Pigeons are eating it. Chopped-up cooked meat, another unnatural food like bread, but one that is given very little by the public, has been learnt by very few Pigeons (in London, at any rate) which will leave bread to scramble for it whilst the majority ignore meat if there are known foods, such as bread, available. Pigeons always "learn" more quickly to take strange seeds of small size—millet, dari, wheat, canary seed, hemp, etc.—than larger ones such as maize, tic beans, or shelled peanuts. This bears no relation to their choice when "experienced". It is difficult to see the utility of this behaviour. It can hardly be to guard against the ingestion of unsuitable food, since once it has convinced itself of the edibility of some new food and swallowed the first morsel, the Pigeon will always continue to eat. Thus it will—if there is enough available—consume as great a bulk of a food consisting of small particles as of larger.

Since the war the Pigeons in inner London have been fed chiefly with bread. Knowing that Pigeons that have once learned to eat them usually take peanuts in preference to other foods, I experimented by giving peanuts and millet to many different groups of London's Pigeons. It was obvious that the birds had no previous experience of millet. Its unfamiliar appearance when thrown to them often made them fly up in alarm and show fear when approaching the millet-strewn ground. Most have, however, eaten the millet after

only the briefest hesitant "picking up and dropping" and with two exceptions (out of very many hundreds tried), all the individuals to whom it was offered ate it within a few moments of the first birds to do so commencing. With peanuts (shelled but whole) the results have been otherwise. Of the birds which obviously did not "know" peanuts, many have refused them, often after picking them up several times. The majority of Wood-Pigeons to which I offered peanuts would not even pick them up, although the very few that "knew" them took them eagerly in preference to anything else. To my astonishment, a starving young Wood-Pigeon, so weakened by hunger that it tottered and stumbled repeatedly and showed no escape reactions, repeatedly refused to swallow even broken-up peanuts (which inexperienced pigeons take at first more readily than whole ones, because of size), although repeatedly seizing them eagerly when thrown to it and lifting and dropping them. This bird could not have been flying more than three weeks, it had learnt to eat bread, but had evidently not succeeded in finding sufficient food.

A young Feral Pigeon which fell from its nest (in South Kensington) when about three weeks old, was hand-reared, chiefly on milk-sop, wheat, peanuts, and millet, although it was also fed small amounts of meat, cheese, crushed egg-shell, grit, and acorns. After it had reached the age when it would normally have been fully independent (I had deliberately made no attempts to encourage or coerce it into feeding itself) it would no longer let itself be fed sop (which nestling pigeons take more eagerly than dry grain), closing and withdrawing its bill if it felt sop in my hand, but opening it and gulping eagerly if it felt grain or peanuts. At this period it began to pick up and swallow wheat or millet grains that were spilled during feeding. When I "pecked" at a peanut with my finger the bird immediately showed interest, but I had to repeat the process for several days running before it at last swallowed one of its own accord. Thereafter they became its favourite food. It did not eat bread—in spite of attempts to make it do so extending over several weeks—until I had kept it without food for some thirty hours. During this time bread, suitably broken up, had been available in dishes from which it habitually fed, but had been untouched. The bird was by then very hungry, but by no means near starvation point, and after a great deal of finger tapping and proffering bread in my hand, I at last persuaded it to eat a little. This specimen had come from a bread-fed population and the relative slowness with which it learned to eat this food suggests—as does observation of their condition—that the majority of "squeakers" in London are actually starving when they first learn to feed themselves. The same may be true for wild pigeons.

The above examples (and many similar ones that might be quoted) suggest that seeds from about millet to pea size present *C. livia* with

innately recognized visual and possibly also tactile stimuli. Such foods as bread seem to supply no such stimuli. Most Pigeons first begin to eat them through the example of others. Some individuals may learn to eat such foods either through extreme hunger inducing them to sample it or because it is offered by a human being from whom they are conditioned to expect edible gifts. Initially some bird or birds in each area *must* have learnt to eat bread in some such manner. Nevertheless, Pigeons that are starving may, *in the absence of others which take them*, refuse such foods as bread and peanuts if they have never seen them before. This they may do after repeatedly picking them up, holding them in the tip of the bill, and dropping them, thus showing that this behaviour pattern is not—as it often appears to be—a means by which a Pigeon can deduce the edibility of any object. It is true that Pigeons often discard bad grains (of a species they are accustomed to eat) after such treatment, but this may be due to the bird appreciating the difference between the visual and the tactile stimuli after it has learnt what “good” grains look and feel like. Jays (*Garrulus sp.*) and Wood-Pigeons will at once discard a bad acorn after similar treatment.

The eating of and apparently deliberate searching for invertebrate life sometimes shown by Pigeons that are feeding young, suggests an innate impulse to find such food and to be able to recognize it when found. It would be interesting to know whether this is a result of the birds being in a certain phase of the reproductive cycle or whether it depends on the diet being deficient, to some degree at least, of food elements needed at this period. I have noticed that captive Pigeons of many species are eager for such foods as cheese, cooked egg, and milk-sop when they have young. A pair of Turtle Doves (*Streptopelia turtur*) which I kept many years ago, and on which I made no precise or written observation, fed chiefly if not entirely on seeds except when feeding young, at which time they ate quantities of milk sop. A pair of Palm Doves (caught as adults) which I kept in Egypt (Goodwin, 1947) fed entirely on maize until they hatched their young, when they commenced to take broken-up peanuts and lentils—both foods of high protein content—as well. Whitman (1919) found that most of his pigeons would eat earthworms at this period, possibly their diet was somewhat faulty and the many weaknesses which he ascribed to hybrid ancestry may not always have had this as a sole cause. I have never known pigeons eat earthworms—though I have offered them to many species—but I strongly suspect that the London Wood-Pigeons do so.

The eating of greenfood (leaves and shoots of various plants) may perhaps often be due to an otherwise deficient diet. I have never seen Pigeons in the country eating greenstuff and none of the Domestic Pigeons I have kept have eaten it except in very small quantities.

On the other hand I have seen Domestic Pigeons that would devour cabbage, lettuce, and other greenstuff avidly. Some in the Cairo Zoo during the war years appeared to be fed on nothing but white maize, and these poor birds would fly madly to the wire to devour anything green offered to them, swallowing leaves, stalks of dandelions, and so on, in a manner unlike anything I have seen before or since.

Roosting, Nesting, and Related Behaviour.

Rock-Pigeons nest and roost in caves. Where available sea-caves appear to be preferred, probably a result of selection through survival, because persecution by man has fallen less heavily on populations in such sites. The nest is placed either on a ledge in a cave, or, less often, in a hole or crevice in the cliff-face. The nest-site is often in semi-darkness and usually well inside the cave. Little detailed evidence about roosting is available. On Fetlar, in the Shetland Isles, I was shown a very large, almost cathedral-like cave, from the roof of which depended large sloping ledges of rock. There was no place in this cave where a Pigeon could have nested, yet large numbers had evidently used it as a roosting place for many years. None were "at home" when I visited it (on an afternoon in late June, 1954), and it is possible that it was only used by non-breeding birds. In a small dark sea-cave occupied by an incubating pair, the cock roosted on a ledge near the nest. Much remains to be found out about the behaviour of the truly wild Pigeon, and a comparative study of feral populations is equally desirable. In some parts of the world Rock-Pigeons have taken to living in buildings. Where doing so their habitat preferences do not seem to differ from those of Feral Pigeons.

The roosting and nesting places chosen by Feral Pigeons are, in effect, the nearest artificial equivalents of natural sites. The girders under bridges, church belfries, ruined buildings, large railway stations, and old castles are commonly favourite haunts. Any sort of suitably sized hole, nook, or sheltered ledge may be used for nesting. If they fail to find any better place, a pair will sometimes nest on an exposed ledge, usually without success. Although the favourite roosting perch would seem to be the equivalent of "a ledge in a big cave" the birds often roost regularly on ledges or roofs with no shelter from above. They never roost "on the skyline" (although lost Homing Pigeons may, exceptionally, do so), but always with a solid wall of some sort on one side of them.

What are the essential "sign stimuli" that guide a Pigeon in its selection of a nesting or roosting site? That remains a question that perhaps some of our members will be stimulated to solve, and I can only offer some tentative suggestions. Pairs of Pigeons seeking a nesting site seem strongly attracted to any conspicuous "dark opening". I have often noticed in London that when new blocks of

flats are being built and have been nearly completed, but with empty spaces where the windows will be, nest-seeking Pigeons frequently enter them and attempt to breed. Whenever I have kept Domestic Pigeons a pair has sooner or later found the open trap-door of the garage loft—which from below appears a square black hole—and nested therein. Whether height, as such, in a building or cliff has any attraction for Pigeons—over and above that occasioned by its mere conspicuousness—I do not know, but am inclined to doubt it. Height after all is a relative matter, and the Rock Pigeon must usually after foraging fly downwards when it returns to its cave. For the actual nest itself, Pigeons like to get in some sort of hollow, or depression if on a ledge, this obviously being related not only, or not so much, to the greater security as to making the somewhat ill-constructed nest “stay put”. Taking advantage of this some pigeon-fanciers put earthenware nest-bowls in large and bare nesting boxes, and birds nest in them as the most suitable place available.

In contrast with the energy with which they will search for a suitable nesting place, Feral Pigeons often seem to lack initiative over roosting places. The many birds that one sees roosting night after night exposed to wind and rain could in most cases find better places, but once having established the habit of roosting in a particular place, it never seems to occur to them to seek for a better one. They will, however, often desert their roosting place if they are *frightened* at it by man or some other predator. What causes apparently unsuitable roosting places to be initially chosen is difficult to understand. Roosting on exposed ledges seems to be rather more general with Feral Pigeons of Homing Pigeon type and ancestry, but this may merely be because these tend to be more numerous in smaller, newer, towns with relatively few buildings that offer shelter. The disinclination to seek a fresh roosting place, except under the stimulus of fear, is easily explicable. So long as the bird remains alive and fit for reproduction, there will be no selection against individuals that stick to an accustomed roost in spite of discomfort. Indeed, since such a roost has for some time “proved safe” there may well be selection in their favour.

On the other hand there will be selection in favour of pairs that show initiative in seeking a suitable nest site, since the apparent optimal site for the adult—sheltered and in semi-darkness—is that where the young are most likely to be successfully reared. It may be mentioned that although in a pigeon-loft pairing often or usually takes place through a hen being attracted by a cock “calling to nest”, yet it is evident that in a feral state many pairs form prior to either partner having secured a nest-site. Also one can, of course, pair a cock and hen Domestic Pigeon just as surely (and a good deal more safely) by leaving them free *outside* the loft together by themselves as by shutting them in the male’s nest-box.

The nesting behaviour of Pigeons is well-known and has been described in some detail by many authors, correctly by Heinroth (1948), and with varying degrees of inaccuracy by most others. One point about the parental feeding, that so far as I recall is not mentioned by Heinroth, should be discussed, as it applies equally to other species of *Columbidae*, and is of importance to aviculturists. The parent at first feeds the squabs with pigeon's milk that forms in the upper part of the crop. When they are a few days old it begins



FIG. 4.—Pigeon feeding small young (from front).

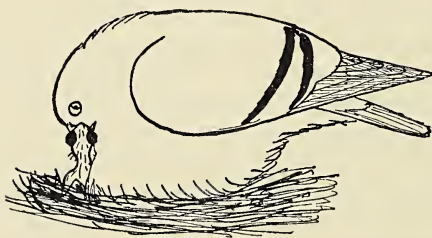


FIG. 4a.—Pigeon feeding small young (from side).

also to regurgitate the food in its crop, of which the young can at this age swallow only small or soft morsels. If one watches the parent feeding one will see that after each regurgitation it re-swallows some food in its gullet. At about four to five days old the squab's crop will contain pigeon's milk plus some small seeds (if these have been available to the adult), and perhaps some soft food or animal matter. A little later the young one can and does swallow anything the parent regurgitates.

The pigeon's milk, I suppose because it lies above the food in the main part of the crop, is fed off first at each feed. If both squabs are equally vigorous, both will get a share. Indeed, the parent often feeds both at once (see sketch). But if one of the young is older or stronger to a marked degree, it will usually be fed first. The weaker young one will get little or no pigeon's milk, and although its crop may be full after each feed, it will be malnourished. It will be weakly and badly fret-marked if it survives at all, although it may improve after fledging if food supplies are good. For the same reason a brood of three is seldom, if ever, completely successful. These circumstances are not likely to occur in a wild, or even a feral state, although exceptionally they may do so. But it will often happen that an aviculturist may wish one pair of doves to rear other young without sacrificing their own. In such cases I have found that if the weak young ones are fed—additionally to the parental feeding—with egg custard, a few mealworms and a very little chewed up lean meat, they will soon start to thrive and thereafter progress normally.

Colour Varieties.

In this brief description of the colours most prevalent in Feral Pigeons, I use the usual name given by pigeon-keepers in Britain. Unfortunately, in some parts, and in America, different terms are used for some colours.

Blue.—The natural colour of the Rock-Pigeon. General plumage blue-grey, usually pale blue-grey on wings, and sometimes also on underparts. Two conspicuous black bars across the wing, and a broad black bar at end of tail. Rump usually white or pale grey, but often same grey as rest of plumage. Neck and upper breast iridescent green and purple. A very common colour among Feral and Homing Pigeons.

Blue Chequer.—As in blue, but the wing bars wider and the rest of the wing feathers with black markings ("chequering"), giving a spotted effect. In dark blue chequers only a small grey mark may be left on each feather, and the closed wing appears very dark. In such birds the grey of the rest of the plumage is also darker, and the black spotting may extend to rump and flanks. The commonest colour among Feral and Homing Pigeons in Britain.

Velvet.—As dark blue chequer, but wing-coverts entirely black. All the "blue" colours may show a chestnut or rusty tinge on the black portions of the plumage, and may show a good deal of minor variation in shade of grey, type of chequering, amount and colour of neck gloss, and so on.

Mealy.—As in blue, but ground colour silvery or creamy grey, neck and breast usually tinged brown and with green and purple gloss, often rich chestnut-brown, head may be brown or mealy white,

in contrast to brown neck. Two brown bars across the wing, no tail bar.

Red-chequers and *Reds* have the same colours as mealies, but pattern (except for absence of tail bar) as in Blue Chequers and

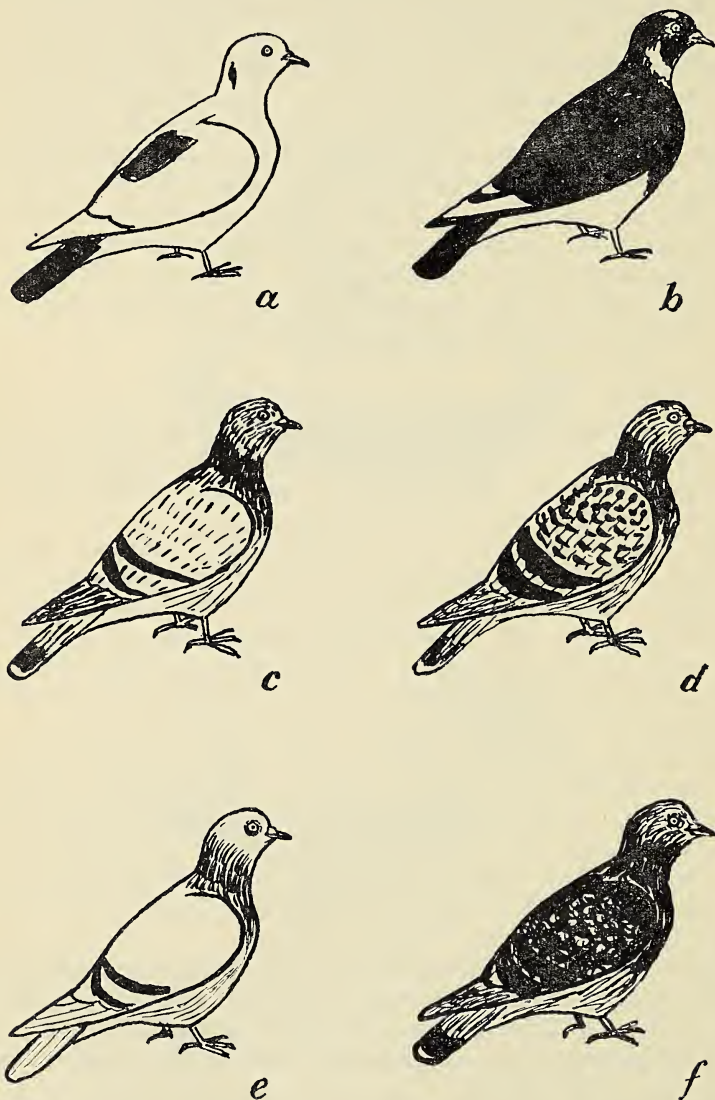


FIG. 5.—Some colour varieties. (a) Gay Pied ; (b) Black Pied ; (c) Blue ; (d) Light Blue Chequer ; (e) Mealy ; (f) Dark Blue Chequer. (For explanations see text.)

Velvets. The "Red" colours are usually rather infrequent in Feral Pigeons, except where these have been derived largely from Homing Pigeons, in which these colours are frequent.

Grizzle.—A pattern, difficult to describe, in which all the feathers are curiously streaked and intermixed with white. They vary from the "light print" which is predominantly white with dark-tipped primaries, and some dark feathers in its head and neck, through various shades of grizzled grey (with darker wing bars), and the same in the "red" colours. In juvenile plumage grizzles are usually much paler than they will be after moulting.

Black.—The deep solid black found in some fancy Pigeons is rare in feral birds. But specimens of a uniform slaty-black are not uncommon.

Pieds.—Any of the colours mentioned may be pied, that is, marked with white, the underparts, rump, primaries, and head being the parts most often affected. Such birds are common among Feral Pigeons in English towns. Gay-pieds—that is birds with more white than coloured plumage, are rarer. Pure white birds—other than first generation escapes—are most uncommon, although Gay-pieds coloured only on tail and scapulars are much less so.

Silvers.—A dilute form of blue, ground colour silvery cream, with grey-brown instead of black markings. Rather rare and, when they occur in feral population, almost always females.

Barless Mealies.—The term is sufficient description. Not uncommon (perhaps one in 2,000) in London.

Some other colours, such as mosaics occur very rarely (in feral populations). Most of the colour varieties described are subject to some variation. Thus blues may be "smoky", a dull dark grey ground colour on wing coverts; "silver blue", of a bright pale, silvery hue; "plummy" with pinkish eye-rims, a peculiar dulling of the plumage and much non-iridescent wine-red colour on the upper breast; or "pencilled" with slight black marks along the vanes of the wing-coverts. But it would have taken up too much space to describe fully such minor variants of each colour phase.

Sexual Dimorphism and Juvenile Plumage.

In the Rock-Pigeon the visible sexual differences are slight, and the birds are difficult to sex accurately from their appearance. Generally the male has a slightly bolder head, and the iridescence on the neck is more intense and often more extensive. In Homing Pigeons and Feral Pigeons that approach them in type the male usually shows a larger cere ("wattle" of pigeon-fanciers) at the base of the bill, and his bill and head are altogether bolder and coarser-looking. But unless one knows one is dealing with related birds this is often of little value. Some strains of Homing Pigeons have much larger bills and wattles

than others, and a hen of such strain may be bigger and coarser than a cock of another.

Pigeons of any of the "red" colours (I am talking now of Feral and Homing Pigeons, not of fancy varieties specially bred for colour), generally show a difference in colour by which they can be at once correctly sexed if in adult plumage. Most males show small blue-grey or black marks—like little streaks or splashes of ink in appearance—on the webbing of the tail and wing quills. In the females these marks if present at all, are brownish in colour. All the sons of a "red" hen Pigeon are always reds (mealies, red-pieds, red grizzles, red chequers, etc.), unless they are albinos, no matter what colour male she is paired to.

Juvenile Pigeons are generally duller than the adults, and have only a very little iridescence on the neck feathers, which are not bifurcated like the adults'. If they are going to have rich purplish colour or wine colour on the upper breast, the feathers of these parts are tipped with rusty brown. The "reds" are browner and more gingery than they

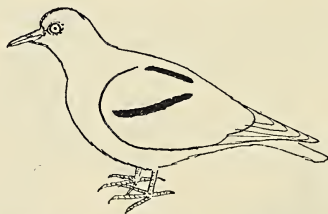


FIG. 6.—Juvenile, blacked-in areas on wings show adult-type plumage. (See text.)

will be after moulting, the "blues" duller and often darker, the chequers have their wing markings less distinct. Grizzles are usually much paler and are often almost entirely white, it is surprising to see the near-white juvenile moult into quite a dark bird, as it often does. Young blues sometimes have the wing-coverts edged with dull whitish. Sometimes a juvenile will show beautifully laced blackish or reddish edges to the feathers of its wing-coverts. Such birds moult out, as a rule, into very ordinary and unattractive "blue-pencils" or "strawberry mealies" (a sort of clouded pattern between a light red chequer and a mealy).

The juvenile usually shows two areas on the wing (see sketch) where the feathers—before it commences to moult—show the adult colour and pattern. The feathers in these areas are indeed not exactly the colour they will be, or rather will be replaced by after moulting, but they are very close to it, and in the more deceptively-coloured juveniles they enable one to guess pretty accurately what the bird will in fact look like when adult.

The young birds have dark greyish—sometimes nearly black—legs and feet, and their eyes are also dull and greyish in colour at first. In young white (albino) Pigeons the feet are pale salmon colour, although adult albinos have the same purplish red feet as other colours.

Note.—The line sketches are intended merely to make the written descriptions more lucid. They have no pretension to art or a detailed accuracy.

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AN AVIARY POLICE FORCE

By DOROTHY A. JAKOBSSON (Ferndown, Dorset, England)

The best and least expensive way, in our opinion, for safeguarding one's birds from little wild creatures is to maintain a bodyguard of well-fed neuter cats. I stress well fed, as no weary, ill-nourished animal will delight in the sport of the chase. It may catch a stray mouse for food—if spry enough—and there the matter ends. My cats bring me in rats, stoats, weasels, mice, or young rabbits daily, and take no notice whatsoever of the doves when prowling around the aviaries. I am afraid they occasionally catch a wild bird, then what right have we to say them nay, who breed birds merely for food, or box hens in tiny cages that they may produce more eggs for our pleasure !

Lewes, Muezza, and Tangy Tim are real pets, and while always having access to the house and a cosy corner beside the fire in which to sleep, frequently toil out through rain or snow and bring home their catch in due season.

My aviaries are merely raised—on a foundation—a couple of bricks high, never once have I lost a bird through rats and the like. I must mention though that the actual sleeping quarters—where the doves are fed—are three feet up from the ground. All the aviaries are surrounded thickly with flowering shrubs, and the grass during flowering time is hay-high, giving perfect cover to any wild creature seeking such protection. Water also abounds in the vicinity—pools, a small stream, and boggy land near-by.

Perhaps it is not generally known that an old law—never repealed—still exists whereby anyone can be fined 5s. for not keeping a cat if a near-by householder can prove the vermin doing the damage came from the former's premises. Of course, in this age of high sounding phrases, the offence is termed "for not taking proper care in the destruction of obnoxious vermin". In days ago, it was so judged that a person might not have the money with which to buy mouse traps, but a cat could always be kept, and as it could be maintained, in the main, from table scraps there was absolutely no excuse for not having one.

Is this the real reason, I wonder, why cats are still untaxed when almost everything else upon the earth is?

* * *

SOME REFLECTIONS OF A SOFTBILL ENTHUSIAST

By CARL NAETHER (Sherman Oaks, California, U.S.A.)

For nearly twenty years I have kept quite a number of softbills year in and year out without interruption. So much effort, time, money, and above all, regard for the birds, have gone into this pastime that I should like to pass on a few of my reflections and reminiscences to other interested persons, in the hope that they may prove interesting as well as informative, and perhaps even helpful in some way.

Prior to moving into the beautiful San Fernando Valley in 1932, I had never kept softbills or, in fact, any kind of birds, except pigeons, which usually do not come under this classification. I well remember my modest beginnings: I started off with, of all creatures, foreign doves, getting a pair of Diamond Doves and other small varieties from the late Mr. Eighmey, of Costa Mesa, a dealer *and* a birdlover. Soon after, I obtained a variety of small finches, whose behaviour, however, seemed rather stereotyped to furnish continuous and lively interest for me over a period of years. Soon my attention was directed to singing softbills advertised in various domestic and foreign bird and pet journals. Then the fun—and also some work—began.

Happily do I recall my first softbill, a beautiful Shama Thrush,

supplied to me by the firm of Louis Ruhe in New York City. So eagerly did I look forward to this bird's arrival that I telephoned the railway express office half a dozen times in an attempt to ascertain its exact arrival either in Los Angeles or in Van Nuys. Finally, when word came that the bird had arrived in Van Nuys, a suburb of Sherman Oaks, I left my work in Los Angeles early and quickly in order to claim the precious bird shipment without further delay. When I got the shipping box home and opened it, the Shama hopped sprightly out of it and into the wire-cage I had readied for him, greeting me right then with a lovely little tune. This sort of greeting evidenced that the bird was in good health and apparently not at all fatigued from the four-day journey *en route* from New York to California. In those days no air-express service for birds was available. That first Shama proved to be one of the finest songsters it has been my pleasure and privilege to keep. But what pleased, even fascinated, me almost as much as his excellent singing was his cockiness and inclination to fight, his swiftness of flight in the room where he was kept (he was let out of the cage once a day for bathing and exercise), and his growing tameness and friendliness. All these attributes pointed to a bird possessed of overflowing energy, charm, and "personality". I shall always remember with delight the utter joyousness of the musical calls and whistles of that first Shama—in fact, I can hear them now as I type these lines. Alert from early morning until late evening, that handsome bird took notice of everything that went on within his view. Let a stranger approach, even at a distance, or a strange noise be heard, and the Shama would sound his sharp alarm note, whipping his long, beautiful tail all the while and scolding. Every day this bird would bathe in a large aluminium pan set outside his cage. He lived in apparent perfect health for three years, dying suddenly one forenoon of a stroke. Though greatly saddened by this Shama's passing, his unforgettable charm prompted me forthwith to try my luck with other softbills.

In the summer of 1933 there came a Clarino, or Solitaire—all the way from Brownsville, Texas, in a dirty little uncovered wire cage containing a few dried-up berries. In English and in German books I had read of the quite unusual, clarinet-like music made by this plain, brown-coloured bird, a specimen of which I had neither seen nor heard before. Acute was my disappointment when reluctantly I signed for the shipment at the express office, for the Clarino was in bad condition owing, no doubt, to lack of food and water. Head tucked in his wing-feathers, he was sitting listlessly in the bottom of the dirty cage as if resigned to an early demise. When I arrived home with the bird, I soon found that he was much too weak either to eat or to drink; so in order to save him, if at all possible, I forced a few drops of lukewarm milk down his throat, repeating the process—a rather delicate one for a beginner like me—at numerous intervals. It was my first experience

with forcing a bird to drink, but it was effective, for the bird began slowly to take an interest in his surroundings, but still he would not touch the soft-food mixture I had prepared for him. So, having read that Clarinos are fond of flies, I got busy at once and caught flies, numbers of them, till it got too dark—and I was greatly encouraged by the bird's taking them at first gingerly, then eagerly. By evening the Solitaire's plumage was almost smooth, and he did not bury his head in his wing-feathers any longer. I felt I had won the battle—with, of course, the bird's co-operation. Next morning, I looked after the Solitaire the very first thing, finding him quite well and willing to take mealworms and other food. Day after day this luminous-eyed bird improved, and it was not a week before he began to sing his flute-like melody which somehow carried me back to the stillness of the High Sierras, where I had journeyed in my younger days and where Solitaires usually build their nests in the shadow of waterfalls. So utterly different from any other bird's song was the Solitaire's that I could hardly trust my ears, for I did not know that any bird was capable of making such exquisite music. Though not as active as the Shama, and certainly not as nervous, this Solitaire, being easily cared for, became tame quickly. He especially relished freshly caught flies and moths, but he would also take mealworms.

These two good songsters constituted the beginning of my softbill venture, which to date has brought me many, many joys and occasional disappointments. Twenty years ago I was pretty ignorant of such birds' food requirements, even though I had made it my business right from the beginning to purchase and consult English and German authorities' writings on this subject. It seemed that in Europe during the greater part of the year, live ant-eggs constituted the principal food of captive softbills. It was asserted that they were so complete and effective in nutritive values as to satisfy almost any softbill's requirements completely—no additional foods being needed. But here in America live ant-eggs were not available. Of course, I eagerly read advertisements concerning various softbill food mixtures, purchasing this and that mixture in order to determine its merits. Always it was maintained that the food was "complete"—meaning that the bird fed with it required no other food, except perhaps a few live mealworms once or twice a day. Soon, however, I learned that my softbills did not like the commercial Mockingbird food, that they ate but very little of it, and that their general condition was not noticeably improved by it. Moreover, the birds would sing but little or not at all on this monotonous diet—to me a sure sign that their daily food lacked something quite essential.

So gradually I began to experiment by adding certain items to the soft-food, such as moistening it thoroughly with freshly grated raw carrot or sweet apple, enriching it with finely chopped hard-boiled

egg, boiled beefheart, or dried ant-eggs, first soaked in warm milk. I learned also that tastes of softbills differ widely, and that at times it requires considerable time and patience to accustom any softbill to a food he has not eaten before. I had often read in various foreign books that milksop was relished by certain species of softbills. However, my birds would have none of it—until I placed pieces of cut-up mealworms atop the milksop, so that every time the bird reached for a piece of mealworm, he also got a good taste of the milksop. By and by I gave the milksop without any worms—and it was taken. It consisted of spongecake and some Pabulum soaked in fresh, sweet milk, with some honey added. This mixture is a much-relished daily food of such birds as orioles, honeycreepers, flycatchers, and thrushes. I give it to them fresh once a day.

Though rather ignorant of many essential aspects of successful softbill keeping, I managed with the aid of good books to learn much about it. I soon found that Europe had a corner, so to speak, on dyed-in-the-wool softbill enthusiasts. All the worthwhile books on this subject were published in Europe. When it came to keeping in good health for long periods of time even the most delicate wrens, warblers, and flycatchers, English and German fanciers seemed to be the experts. They, so I read, had been at it for years and years. Their magazines and books were filled with fascinating, practical experience articles on softbill keeping and training, while ours in America were almost wholly devoted to information pertaining to hardbills. Moreover, I soon learned that most American bird-fanciers consider the keeping of softbills, whether in cages or in aviaries, as entailing far too much trouble in feeding and in cleaning. Moreover, they usually wish their hobbies to pay expenses. Since it is practically impossible to raise softbills in captivity in appreciable number and since the market for them is limited, most American birdmen and women much prefer to keep finches and parrotlike birds, which breed more or less freely in captivity and which can be sold readily to other fanciers or to dealers.

So, taking everything into consideration, the best I could do in caring for my softbills was to rely on the printed suggestions found in British and German books and papers. *AVICULTURAL MAGAZINE*, *Cage Birds*, and *Die Gefiederte Welt*—in those early years of my hobby—frequently brought articles on how best to care for certain, more or less delicate, softbills. Moreover, I obtained some sound help from several fellow fanciers in California, in particular Alex Isenberg and Eric Kinsey, both of whom maintain to this day quite extensive collections of softbills, the former specializing mainly in foreign, the latter mainly in domestic species. Both, however, live five hundred miles distant. Detailed letters describing the various and ingenious foods supplied captive domestic softbills, received from Eric Kinsey,

and a subsequent visit to his aviaries, proved quite enlightening, as did a visit also to Alex Isenberg's avian establishment.

It was inevitable that in the beginning of my softbill hobby I should make blunders, resulting largely from giving the wrong foods. Thus, a disastrous blunder I made was to feed a delicate, wren-like bird quite a number of mealworms on the advice of a Japanese bird-dealer in Los Angeles from whom I had purchased the lively creature. If I remember correctly, the bird was a Japanese Wren. At any rate, it was modestly coloured—brown all over, tiny, and very, very lively. A Japanese woman who was in the store at the time of my purchase, gave an imitation of the bird's call which, to the best of my recollection, was something like "Uguisu, Uguisu!" Sorry to relate, the bird did not utter these—or any other—notes while he was in my possession, where he lived but three or four days. Had I cut the mealworms into small pieces or had I soaked them in warm water to soften the hard shells, this charming, vivacious wren might have been mine to enjoy and to care for a long time. It could not, of course, digest the hard-shelled worms. For days the loss of this rare little bird saddened me. Hard as I tried to obtain another specimen—they cost \$15 which at that time was a good price—such was not to be had since but few had been imported from the Orient. The loss of this bird taught me an important lesson—carefully to adapt the kind and the texture of the food, be it in natural or in commercial form, to the needs of each individual bird. Different softbills have different tastes and these manifest themselves in a variety of preferred foods. It is up to their keeper to determine as best he can, what foods keep certain birds in sound condition year in and year out. If he is genuinely concerned about the welfare of his feathered charges—wants to see them healthy and happy day in and day out—he will constantly endeavour to find new items of food and new food combinations, trying them out very carefully and gradually so that his birds' digestive mechanisms may adjust themselves readily to them, and without any ill after-effects. In other words, the new food or foods are given *in addition* to the regular daily menu and the birds are left to try them out themselves. It was in this manner that I learned that most of my softbills like peanut butter very much. Now I keep jars of this nutritious item in every aviary the year round. Even my foreign doves take peanut butter with gusto. But Indian flycatchers, Yuhinas, and shrike, added recently to my little collection, have not touched the peanut butter as yet. They no doubt will in due course of time. I never thought that softbills such as, for instance, Golden-fronted Fruitsuckers would eat fresh lettuce. Nevertheless, such is the case with mine—as well as with other softbills. It must be quite tasty to these birds because they have been in my aviaries for many years, a number of them for fifteen years, and quite a few over ten years. Recently I "discovered" pecan-meal as

making an excellent addition to the softbill mixture. Finely ground, it is easily mixed with the other items. The birds eat it readily and apparently it does them good. Not long ago I read an advertisement offering *wingless* fruit flies (*drosophila*) to fish fanciers. I purchased several cultures of these small flies in glass bottles some weeks ago, and I have been feeding the flies daily to a pair of jaunty Yuhinas. They make a lot of "musical fuss" the moment I place a dish with fifty or more of the tiny flies in their cage and they eat them in a hurry. I am convinced that these flies would serve as an excellent live food also for wrens, sunbirds, and humming birds, even though the two last mentioned might prefer flies that can fly. But my Canyon Wren takes them avidly. Since these wingless flies, feeding on decaying fruit, multiply fast, they are easily and quickly raised in numbers. In all softbill feeding, it is self-evident that the more natural we can constitute the daily diet, the more conducive it is likely to be to the birds' health and general well-being. Live food being the most important item in most softbills' natural diet, I make it my business to take every spider, moth, butterfly, angleworm, beetle, etc., to my birds the moment I catch it—take it, mind you, with a sort of boyish triumph as if I were bringing them an unusual delicacy—and maybe I am! Always I find certain birds requiring some extra attention, extra care, extra food. Softbills exude individuality. My business is to cater to this charming trait in every possible way. Years ago I learned that giving my birds extra attention pays large dividends—in improved health of the birds, in more and better singing, in greater tameness and friendliness. Over the years certain birds, such as a Solitaire, a fruitsucker, a Shama, and a wren, simply *expect* extra service from me. They fly to me the moment I approach their cage or enter their abode, begging for titbits, which usually they get. I try never to forget that my birds are my responsibility—my *very deserving* responsibility!

But to return briefly to one of my main topics—initial blunders. Another blunder, one that I made several times, caused me considerable chagrin. A fellow birdlover (?), calling at my aviaries, would persuade me to let him have this or that bird, which he wanted "oh, so terribly much!" Twice I have given in to such pleas, only to be very much disappointed some weeks later by the report that this person, not finding the birds to his liking, disposed of them on short notice and without making any sincere effort to learn their good qualities and to fit them into his collection. In this connection my many years of keeping softbills have made me sensitive to the birds' feelings and reactions, perhaps too much so. Softbills' feelings, it seems to me, are very easily upset. Being captive, they must endure so much fear from man, so much cruelty—directly and indirectly.

Take the average softbill. First of all, it is trapped in its wild habitat, stuck in a small box or cage, shipped over long and noisy

distances, then caught again, only to be again transferred from cage to cage and aviary to aviary. Its whole life pattern is being changed by this process, changed suddenly, often ruthlessly. The bird has to change many of his habits to conform to his keeper's whims and wishes. It is in constant fear of being caught up, dashing against cage-bars or aviary wire in a mad attempt to escape the grasping hand or enveloping net. No wonder that many softbills (and hardbills, too) require months, if indeed not years, to recover from such maltreatment. Some of them never recover, shown partly by the fact that they simply will not sing or breed in captivity, not only because they are wholly out of their accustomed *milieu*, but because they are mentally and physically shocked. Other softbills regain, after a time, their ability to sing, provided they are given humane treatment and patient care.

When one considers the fear which captive birds are subjected to, especially when caught up and transported, one finds it difficult indeed to justify the hobby of keeping such live birds as softbills. Many birds simply die from the effects of fear—the strain is too much for their delicate constitutions. Assuredly, the hobby of keeping softbills is in most cases nothing more than just that—a hobby, a personal pastime. It has practically no so-called scientific aspects or values. To be sure, occasionally this or that, more or less rare, species of softbill is successfully raised in captivity, and a general account of its breeding is reported and published in the avian press. But in many instances this account is far too general, too superficial to disclose essential habits of either parent birds or youngsters, or both. A report of such habits to have even the semblance of scientific character and value, would have to be based on continuous, day-in and day-out, very thorough observation of certain birds' behaviour. But such thorough-going observations are foreign to most keepers of softbills since, apparently, their recording would entail too much concentrated effort and writing. If, then, a species of foreign softbill has been induced to breed in captivity, and does so successfully, by all means let its owner report this success—but as a personal achievement more or less, not as a scientific one. And let such report be written from the standpoint of the hobbyist so that other hobbyists may benefit from it. It is regrettable that so many keepers of softbills cannot or will not *communicate* their observations and experiences through the printed word to other like-minded men and women. Go through the issues of this magazine, for example, and count the number of articles devoted to softbill-keeping and you will find few of them, not because softbills are not kept by many people and often in considerable numbers, but because their owners are reluctant to report on their collections, often greatly underestimating the value of their observations and their experience.

I have kept softbills for nearly twenty years—and I keep them to-day

—for one principal reason—their ability to sing. So I more or less confine my hobby to obtaining male birds of singing species and try to induce them by means of good care to entertain and inspire me with their songs. To me it is a never-failing, joyous surprise to hear a recently acquired bird sing for the first time. Shama and Dhyal Thrushes have, on the whole, proved my finest songsters, followed by European Nightingales, White-Cheeked Jay-Thrushes (really whistlers) European Blackbirds, and many other species. Freshly imported softbills, if not frightened out of their wits by frequent and rough handling in transport, will sometimes sing soon after arrival in my aviaries. Some, however, will require a season or two of acclimatizing and adjusting to new surroundings and of freeing themselves, so to speak, from shock before they will sing at all. In captivity some softbills' ability to sing will improve from year to year. The exact reason for this condition I do not know, unless it be due to a more nutritious and eminently regular diet than that obtained by birds which are at liberty and on their own, and perhaps also to an increased feeling of "at-homeness". Anyhow, I have learned that it pays to give a bird ample time—a year or more—in which to prove his singing ability. In certain instances he may need that much time to recover from the effects of fright induced by having been caught, boxed up, and shipped—to him thoroughly fearful and wholly unnatural experiences.

Whether to keep softbills in cages or in aviaries is assuredly a debatable matter. It depends largely, so it would seem to me, on the specific purpose for which the birds have been acquired and for which they are meant to be kept. If that purpose is to tame a softbill quickly and convert him into a pet or to observe his habits at close range over a period of time, then the cage is by all odds the proper enclosure for the bird. If, on the other hand, a softbill is to lend avian atmosphere to a piece of wired-in outdoors, or to breed, then the aviary is the proper place for him. Planted aviaries are best for most softbills since they afford them the most natural environment and protection in captivity. By nature shy, most softbills will hide in bush or shrub, especially when they see strange persons or animals approaching. Usually, therefore, an aviary is not as effective a means of showing off birds as is a cage. Even those birds which ordinarily are so tame as to take mealworms from their keeper's hand will, when sighting strangers, go into hiding. Here I recall the enterprising birdman who filled his spacious, partially planted aviaries with numerous softbills only to discover that, as a rule, they would stay out of sight, so that most of the time neither he nor members of his family, nor friends could see and enjoy his colourful collection. For a time he vowed "I'll cut out the shrubbery. I want to *see* my birds. I'll soon fix things!" However, he soon found that among members of a large collection of softbills, such as he maintained for a time, frequent fights,

often resulting in serious injury to smaller or weaker birds, occur, unless the birds have close at hand a ready avenue of escape, such as the leafage of shrubs and trees planted in the aviary. When, more or less frequently, this same hobbyist found valuable birds dead on the floors of his aviaries, he became convinced of the birds' need for shelter, for hiding places, which he then supplied promptly. Since most softbills do not damage living plants, their aviaries may be thickly planted to suit their needs for protection and also their keeper's needs for attractive landscaping. Except for the birds, assuredly nothing gives to an aviary a more pleasing and a more natural setting than various living plants, deciduous as well as evergreens. They lend it that indispensable out-of-door atmosphere, which invites favourable attention from its owner and often favourable comments from his friends and visitors.

In conclusion, my keeping of softbills has afforded me hours upon hours of quiet relaxation. The work of caring for and feeding my birds has been—and is—pleasant and not time-consuming. Now, with between fifty and sixty softbills, largely in aviaries, the preparation of the various foods as well as the actual feeding requires only an hour or so—and a very pleasant hour it is, this fairly close association with my feathered friends which, given reasonably good and regular care, repay me handsomely in so many ways, not the least of which is their fine singing. By some persons the hobby of keeping softbills is considered expensive, but I have not found it so. What if I pay, say, fifty dollars for a Shama Thrush or a European Nightingale! Assuming that I can maintain such a bird in sound health for at least ten years, the initial purchase price thus spread over the bird's life-span in my aviaries is quite reasonable. The major drawback to this hobby, in my opinion, is that it tends to keep its followers too much at home, for it is usually difficult to find a reliable man or woman, or one sufficiently interested, to care for one's softbills during a prolonged absence. Moreover, one is usually reluctant to entrust one's precious birds into the hands of a stranger for fear he or she might neglect them, since such neglect, whether intended or not, can easily prove fatal with more or less delicate birds accustomed to being given precise care.

All in all, I believe that softbills make remarkably interesting and intelligent subjects for a stimulating hobby, owing largely to their unique character. And they repay their keeper variously and generously for whatever attention and care he devotes to them day in and day out the whole year through.

REPORT ON PROPAGATION OF HYBRID SONNERAT'S JUNGLE FOWL

By DAVID M. JOHNSON (Port Orchard, Washington State, U.S.A.)

Since my report of a year ago we have learned a considerable amount by trial and error in propagating our birds.

We find that new blood is a most important factor in producing chicks that are biologically proficient, with the will to hatch well and with constitutions for good stamina or low mortality. The question arises from time to time, why cross Grey Jungle Fowl with any fowl of another species regardless of what breed of that species it may be? The answer to that is that Grey Jungles or *sonnerati* are limited in number in this country and in need of new imported blood to rejuvenate them. *Sonnerati* are not too prolific in the first place, laying from four to seven eggs per clutch in a brief spring season, their autumn bloom after eclipse being too late in a northern latitude when the sun is rapidly leaving us, while hybrid birds and back crosses are so prolific, producing an abundance of eggs comparable to poultry.

Birds produced from hybrid cocks and *sonnerati* hens, which we may refer to here as $\frac{3}{4}$ Sonnerat's, all have the general appearance of pure *sonnerati* including the inherent wildness if not more wild.

We have learned that our best birds from all standpoints are those obtained from cock $\frac{3}{4}$ *sonnerati* $\frac{1}{4}$ Bankaiva crossed on Cornish Indian Game hens. These are the chicks so much in demand this season which we call "Johnsoni" 2.

They come as much alike as peas in a pod in uniformity of shape and colouring with all the qualities one would wish to obtain in a bird lovely to behold.

It is birds of this type we are exporting now to southern States and overseas, some 30 odd in number, which will be tried out in rehabilitation projects, habitats believed suitable to it as birds potentially for the coverts.

We believe there is much future for it as a wild bird as it retains all the wild and sharp-witted instincts of *sonnerati* and its distaste for captivity. Its powers and willingness for flight are all one could wish for, comparable to pheasant in flight.

We find that Cornish, or any of the true games, are the best medium for crossing as it makes a harmonious blend of no offshoots or mutations, no erect tails or surplus combs and wattles indicating the stigma of domestic degeneracy of most fowls.

It has been our hope that more aviculturists would experiment on the establishing of their own birds from original crosses so that we could exchange birds of different blood lines of no relation to one another

and who could introduce new Sonnerat's Grey Jungle Fowl blood to their flocks from time to time as the need shows itself.

A strain almost identical to pure *sonnerati* could be established with strong constitutions and a potential to abundance of egg production and prolific aptitude. Our $\frac{3}{4}$ cocks inherit the beautiful cape or hackle with the waxy dots as in *sonnerati* except the spots are slightly narrower.

Our experience in the rearing of chicks is that they do not thrive well in confinement and under artificial conditions. They are birds of energy, lovers of freedom, work hard for a living and seem to derive things from the earth essential to their welfare and good health. Free range or semi-enclosure seems to be essential, and they are more carnivorous and less granivorous than domestic fowl.

There has been no mortality from illness or disease in spite of our cold overcast sky and altogether reluctant summer to date.

Our parent birds are already going into eclipse for the season. (July, 1954).

* * *

BAUDIN'S COCKATOO

(*Calyptorhynchus baudini*)

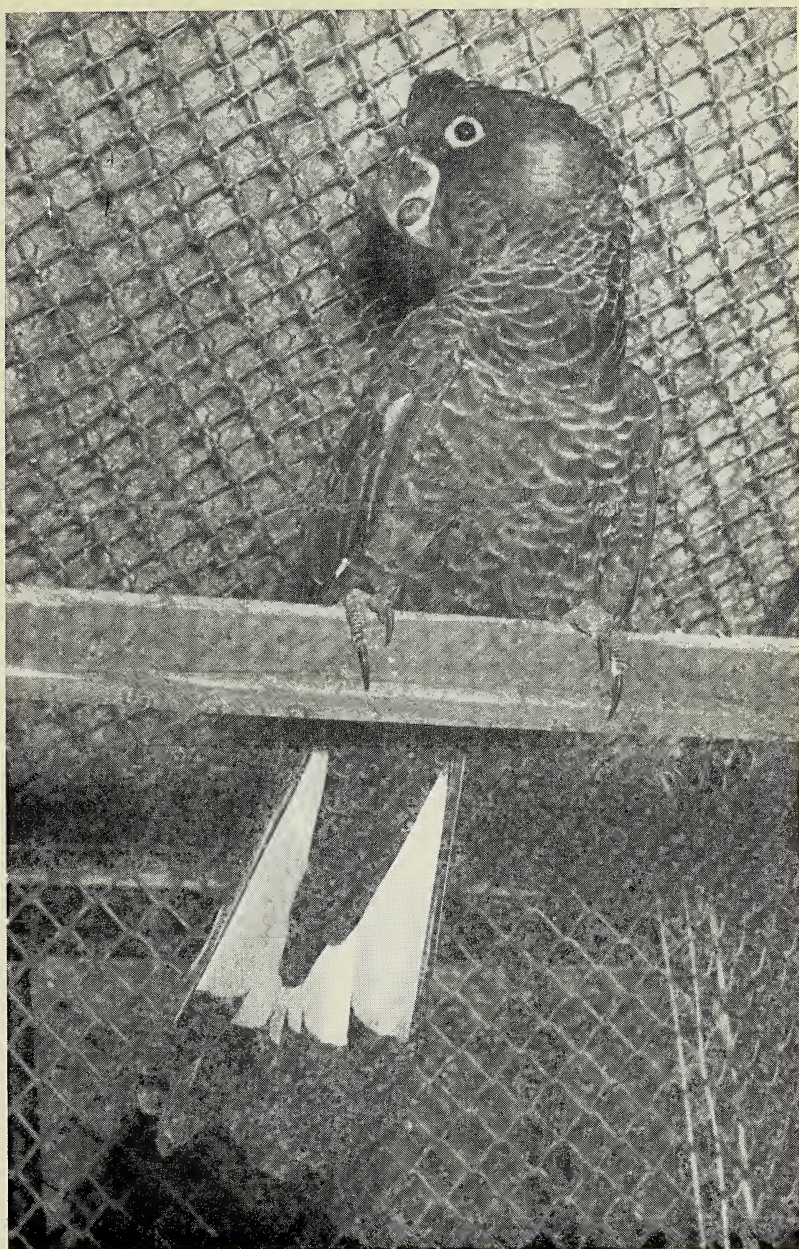
By JOHN YEALLAND (Zoological Society of London)

Baudin's, or the White-tailed Black Cockatoo, originally described and figured by Lear in 1832, is a native of forested areas of south-western Australia.

Gould says of it : " Like other members of the genus, it frequents the large forests of *Eucalypti* and the belts of *Banksiae*, upon the seeds of which it mainly subsists ; occasionally it seeks its food on the ground, when insects, fallen seeds, etc., are equally partaken of ; the larvae of moths and other insects are extracted by it from the trunks and limbs of such trees as are infested by them."

Mathews (*Birds of Australia*, vol. vi) quotes Tom Carter as having observed that : " This is the common Cockatoo of south-west Australia and is found as far north as the Murchison River. They associate in flocks when the breeding season is over . . . At times a flock will settle in an orchard, and do great damage in a very short time to the buds and young shoots of the trees . . . The breeding season about Broome Hill seemed to commence in August and continue until November. Two eggs appear to be the full clutch, and very frequently one egg is not hatched . . . The fledged young birds are fed by the parents for many weeks after leaving the nest ; thus on 10th February, 1914, I noted young birds being fed by adults . . ."

The nest is situated in a hollow tree, usually at a considerable height from the ground. At what age breeding commences is, so far as I am aware, not known.



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[Zoological Society of London

BAUDIN'S COCKATOO.

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Among other interesting observations on this bird, Sir Edward Hallstrom states (*Foreign Birds*, vol. 20, No. 4) : "The White-tailed Cockatoo has lately been declared a pest, as it has formed a habit of destroying apples in search of the pips."

Thus, it seems, yet another beautiful and interesting bird is threatened with extinction.

* * *

BREEDING OF COMMON RHEA IN ZOOLOGICAL GARDENS, ADELAIDE, AUSTRALIA.

By VINCENT D. HAGGARD (Director)

In 1938 Adelaide Zoological Gardens acquired a solitary hen Common Rhea (*Rhea rothschildi*), and it was not until thirteen years later that a mate was obtained for her. In the meantime she regularly produced eggs which, incidentally, proved excellent for culinary purposes such as omelettes and scrambled egg, these being not too strong in flavour as might have been expected.

Late in 1951 it was arranged with Taronga Park Zoo, Sydney, that we should have a male on loan for mating purposes. This bird arrived by air on 22nd November, 1951, and the two were placed together soon afterwards.

The first egg was laid on 5th December and others at irregular intervals, eight having been laid by 13th January. In the meantime three eggs had been broken by the birds and all were then removed from the yard as they appeared and held until the male showed signs of commencing incubation. In anticipation of this a nest had been hollowed out in the ground underneath a tree and an egg placed therein.

The male sat on this for a short time on 13th January and the other remaining four eggs were then placed under him. Subsequent to this the hen laid a further seven eggs, the male ultimately covering a total clutch of twelve. It followed, therefore, that he had been sitting a considerable time before the last egg was laid and that the first chick would make its appearance long before the last eggs were expected to hatch.

Incubation period is about forty days and the first chick appeared on schedule on 21st February. There was something abnormal about the arrival of this little stranger, as it was found early in the day at a considerable distance from the nest, together with the remains of the egg from which it emerged. This chick was placed in a box and kept in warm sunlight until later in the day when an attempt was made to place it under the brooding male. However, he gave it several vicious pecks and it was therefore placed in a warm brooder overnight. Next morning a second chick was found in circumstances

similar to the arrival of the first, and the two were placed in the brooder out in the sunlight which was nice and mild at the time. At this stage they were too young to be in need of food, but both showed an interest in shell-grit and swallowed a few pieces. Instinct was already prompting them to take in this necessary adjunct to assist in digestion of food.

Late in the second day three more chicks had hatched and the male was by then looking upon them with a more kindly eye ; the opportunity was therefore taken to return to him the first two arrivals. The score was now five. On the third day a sixth chick hatched and the proud father came off the nest the following day, leaving six unhatched eggs. This eventuality had been foreseen, owing to seven eggs being laid some days after incubation had commenced, and an incubator had been warmed up in advance in readiness to carry on with the job. Two of the eggs were obviously no good, but the other four were placed in the incubator although hopes were not high of getting more chicks. However, much to our delight, about a week later three more new arrivals appeared at odd intervals. These were kept in the brooder for several days till they gained strength, then being transferred to father's care. He accepted them readily enough but there was a very noticeable disparity in their size compared with their elder brethren, this difference persisting for several months when it became more difficult to differentiate between them.

At no stage after the eggs were laid did the hen evince any interest in the proceedings and, after the arrival of the chicks, it was deemed advisable to remove her from the yard as her attentions were inclined to be hostile rather than maternal. Early every evening and when the weather was cool, father would sit down and fluff out his wings and the chicks would snuggle underneath just as domestic poultry chicks do. He proved a good parent and not one chick was lost.

When about four months old, five chicks were sent by air to Taronga Park Zoo, one in exchange for "father" who was retained and four as Taronga's share of the "dividend" resulting from the satisfactory arrangement entered into earlier.

Summary.

5.12.51	First egg laid.	
14.1.52	Male commenced incubation.	
21.2.52	First chick hatched	} by male.
22.2.52	Four chicks hatched	
23.2.52	One chick hatched	
1.3.52	Two chicks hatched	} by incubator.
2.3.52	One chick hatched	

In subsequent seasons we have bred numerous Rhea chicks and, in fact, at the time of writing the male is "busy" incubating another clutch of eggs.

It might be thought that undue importance was attached to the breeding of this species which has since proved very easy to rear. It is pointed out, however, that Australian Zoological Gardens are subject to very restrictive quarantine regulations, and several years prior to the first breeding referred to, a complete ban was placed on the importation of all birds from anywhere in the world except New Zealand, where quarantine regulations are equally restrictive. The reader will readily understand, therefore, the importance that Australian Zoological Gardens place on the breeding of foreign birds which, unfortunately, can no longer be imported. Unless we can breed from the stock of exotic birds in our possession the species gradually becomes extinct in our Zoological Gardens as individuals die out.

We hopefully look forward to the day when perhaps the severe restrictions might be somewhat ameliorated, but in the meantime must do the best we can in the circumstances. We envy Zoological Gardens in other parts of the world which operate under much more liberal quarantine regulations and which, with certain reservations, can make a choice from the birds of the world.

* * *

BREEDING THE CANARY-WINGED PARRAKEET

(*Brotogeris versicolurus chiriri*)

By E. N. T. VANE (Ballinger, Bucks, England)

Records of the breeding of *Brotogeris* parakeets are few, probably because they are such delightfully finger-tame pets that the opportunity to reproduce is seldom given them. Peters lists three subspecies of *versicolurus*, regarding the Canary-wing as only subspecifically different from the Whitewing, yet the All-green he considers as a different species. When the Parrot ban was raised recently a number of Canary-wings came over and among the consignments it was not unusual to find an occasional odd specimen of either of the above-mentioned birds.

Some specimens appear to be considerably larger than others, but as all the birds in each consignment are generally of the same size, this feature is possibly only due to a local race variation. The distribution is rather wide, ranging from Eastern Bolivia to Argentine, Eastern Brazil, and Paraguay.

In setting out to breed them, the first obstacle is to sex them correctly. There is no external sexual distinction; South American parakeets are very difficult to sex by the pelvic bone test, as these are much more close set and elongated than African or Australian birds, but when in breeding condition there is a noticeable variation in the opening in the sexes. This definitely disappears when breeding is over and it was quite impossible to tell my breeding pair when they were eventually brought

in, although I knew perfectly well which was which as the male had a slightly upturned toenail on one foot. They had been in my possession over a year before all doubts on this point were removed. According to some old writers the hen has a less deeply notched and narrower bill and her head is rounder and smaller than the cock's. If anything, my hen is larger than her mate, but they are practically indistinguishable. Her bill is less notched on one side than the other, in other words it is impossible to sex them by sight.

For the first year they were kept in a cage indoors as they were pinioned and unable to fly at all. They were absolutely fearless of human beings and appeared fully conscious of their superiority. They chattered incessantly and made a great noise when certain programmes were on the radio or one attempted to speak on the telephone. When they were fed they always came down to wait for the fresh food and used to bite my fingers impatiently; it would have been perfectly easy to tame them to sit on one's finger, but I always hoped to breed them so did not encourage them to become over-familiar.

During the winter of 1953-4 they moulted out and grew their flight feathers, the cock being the first to do so. It now became possible to distinguish their sex as the cock sometimes fed the hen and it was then noted that he had one upturned toenail. At the end of April they were moved to a small aviary facing south, 6 feet long, 6 feet high, and 3 feet wide, with half of the roof covered in and the whole of the back protected on the north with asbestos sheet. There was no completely enclosed shelter, but 2 feet from the rear a sheet of windowlite afforded protection from wind and rain, and behind this screen their food was supplied through a service door. A large, solid nest-box about 18 inches deep and 9 inches square, with 3 inches of peat mould in the bottom, was fixed to the rear of the flight. To start with they did not use the box for roosting, but were sensible enough to get right at the rear high up under cover, which was just as well as mid-winter returned early in May and they had to be brought in once more. When roosting they like to hang upside down on the wires both in cage and aviary. A second attempt was started on the 8th May, and by the 21st they began to roost in the box, and a week later the cock was feeding the hen regularly.

Their demeanour in the flight did not change, they were still perfectly fearless and friendly though when they came nibbling at my fingers the cock began to scold rather badly and sometimes bit rather hard. It was plain that with the approach of breeding operations he was going to be somewhat vicious and it would be unwise to associate more than one pair in a flight at this time. They made much less noise in the aviary, only chattering when they saw anyone coming round to see them. They ignored some lovebirds in an adjoining flight unless they hung on the wire, but as this was double and spaced

one inch apart no harm could result, though without this precaution I fear there would have been many toes missing by the end of the season.

On the 10th June they were seen mating. This was accomplished standing side by side on the perch gripping their left and right feet together as if they were "hand-in-hand". The box being hung outside the flight I was able to inspect it without their having any idea that I was doing so. As soon as their food was supplied in the morning they were so busy examining it and scolding me through the service door that I could safely look in. The box was perfectly clean, a certain amount of whittling had been done and a hollow made in the peat mould in one corner. No materials were taken in.

The first egg was laid on 11th June. There were two on the 13th, and the hen began to spend more time in the box. On the 20th she was off feeding and there were five eggs a little larger than a Budgerigar's and more elongated. She had been almost continually in the box since the 13th, and I assumed she had been sitting from the second egg and they would probably hatch about 1st July, though the eggs appeared so light in colour that I hardly expected them to be fertile.

This fear mounted when I was next able to inspect the nest on 1st July. Still five eggs and not very fertile-looking. The box was right next to the feeding trap and the hen sat close every morning until I had moved two or three flights away, when she immediately came off and started feeding ravenously. I did not wish to disturb her unnecessarily so did not go back and interfere.

On the 11th July I looked once more and was very disappointed to find still five eggs which did not look particularly "heavy". I decided in desperation to give them three more days. On the 14th, when I went to remove them two looked as though they had something inside, so I left them and was most thankful the next morning I had done so as three eggs had hatched on the 15th within the twenty-four hours. On the 16th all five had hatched. The period of incubation is, therefore, a lengthy one of about twenty-six days at least. The young were entirely naked, just like Budgerigars, which might, therefore, be used as fosters if the long incubation period is allowed for by moving the eggs. They were slow in developing, being completely naked until ten days old. On the 30th (fifteen days) the feather tracts could be seen forming, there was no down, their eyes were black and still unopened, the beaks were white—not black as I once saw them described.

Their eyes were really open on 8th August (twenty-four days old) by which time the feathers were opening and showing yellow and green. By the 18th their bills were horn colour like the adults, and they were looking extremely well—one had disappeared in the early days. All

the eggs had hatched, but they were never interfered with beyond the unsuspected inspections from the back, all that one could see was a tangled bunch of young birds and possibly the last to hatch did not get its fair share and was lost.

The hen did all the incubating, the cock joining her at night in the box when he may have assisted in these duties, but she only came off at short regular intervals to feed and exercise. Both birds remained perfectly fearless and literally finger tame, yet aggressive and a little vicious, especially the cock, who was a model parent, spending the whole day preparing the family meals; he scarcely left the food bowl which was filled twice daily. Enormous amounts of greenfood were consumed.

The first young one to leave the nest made the effort on 3rd September, just eight weeks from the date of hatching. It was exactly like its parents but a little smaller and the bill was obviously immature. It stayed out all day, but as it was cold in the evening he was put back into the nest at nightfall. Two came out on the 5th and again were replaced at night. On the 6th all four fledged and made a very pleasant sight on the perch together in a row with mother and father on the outsides. One was rather less steady on the wing than the others. On 8th September they all stayed out as I neglected them by attending the B.A.C. dinner, but the night was fine and they appeared none the worse.

On the 9th it rained and rained, just like an English summer, and I was very sad to find the youngest one lying on its back with its feet in the air in a pool of water an inch deep. I picked him up and was about to throw his body away when I discovered he still had a spark of life left. I brought him in and held him in front of an electric fire fully convinced that I was wasting my time, but in an astonishingly short time he recovered and within two hours he was sitting on my finger quite dry and preening himself. To cut a long story short, he was hand-reared and was feeding himself in ten days. He was given soaked bread rusks with a little oatmeal and peanut butter and Virol. He also had a little apple, a daily dose of abidec, and in a few weeks he had caught up his brothers, with whom he is now reunited although he is much steadier than they.

The other young stayed out in the aviary until the end of October. They did not go back into the nest to roost, but sat side by side on a perch, the parents hanging from the wire overhead. On one occasion the temperature dropped to 25 degrees before they were brought in.

Their food is mainly canary (mazagan), with a quarter part of white millet, one-eighth part sunflower, a few oats, and a small ration of hemp whilst being reared. They are very fond of fruit and had a slice of apple or pear daily each, occasionally a piece of banana as I understand that most South American Indians feed them on this

almost exclusively. They did not care for millet sprays much. Every day they had moistened brown bread rusks and sprouted canary seed. They consume a large quantity of greenfood, starting in the early part of the season on dandelion leaves, then their seeding heads, groundsel, chickweed, sow thistle, and later on all seeding weeds. They delighted in chewing up a huge whole sow-thistle.

Given a true pair and the right accommodation, which is very modest, I believe there is every hope that these delightful little birds would establish themselves in our aviaries, but I do think that each breeding pair requires separate quarters.

* * *

As described above, E. N. T. Vane has bred the Canary-winged Parrakeet (*Brotogeris versicolurus chiriri*). It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

* * *

COUNCIL MEETING

A Council Meeting was held on 10th November, 1954, in the Council Room, Zoological Society of London.

OFFICERS FOR 1955

There were the following retirements and appointments :—

Council : Mr. G. T. Iles, Mr. R. C. Witting, and Mrs. G. T. Clark retired by seniority.

Mr. F. Grant, The Rev. J. R. Lowe, and Mr. E. N. T. Vane were elected to fill the vacancies.

Elected Hon. Life Member : Mr. W. Bamford.

SOCIETY'S MEDAL

The Society's Medal was awarded to : Mr. D. Goodwin, for breeding the Lanceolated Jay (*Garrulus lanceolatus*).

ARTHUR A. PRESTWICH,
Hon. Secretary.

DARENTH-HULME, 1954

By KAY BONNER (Southgate, England)

The past breeding season has been very poor, in fact it is really remarkable how few young ones have been reared. It is fortunate therefore that, in spite of the atrocious weather, even including the near arctic conditions early in the year, the mortality has, for a comparatively large collection, been extraordinarily low.

It will perhaps be easiest to list the various aviaries and their inmates. The main range has housed the following :—

1. Stanley Parrakeets, a well-tried breeding pair produced only one good young one. Diamond Doves.
2. Queen Alexandra's Parrakeets laid, but did not hatch.
3. Stanley Parrakeets, and two cock Yellow-naped Whydahs.
4. Cockatiels produced one very undersized young one that died soon after leaving the nest. Fischer's Lovebirds, a small colony that just holds its own. One young one was hatched and reared by a pair of Budgerigars. A cock Peach-faced Lovebird.
5. Lineolated Parrakeets, the breeding colony has increased but to what extent is not known exactly.
6. Pennant's Parrakeets, the pair that reared four good ones last year, reared only two this season.
7. Abyssinian Lovebirds, the three pairs again failed to reproduce.
8. Golden-winged Parrakeets, the two pairs made no attempt to nest, not even inspecting nest-boxes.
9. Moustache Parrakeets, most dreadfully noisy and definitely not recommended to any aviculturist likely to suffer from neighbour trouble.
10. Cactus Conures and a single Weddell's Conure. Painted Quail.
11. Two pairs of Yellow-cheeked Conures, both nested unsuccessfully : another pair died during the arctic weather, feet badly frost-bitten.
12. Two pairs of Canary-winged Parrakeets occupied this aviary early in the season. This species has the reputation of being *very* quarrelsome, and this was confirmed by the fact that one of the quartet was severely maltreated and rescued only just in time to save its life.
13. Golden-mantled Rosellas reared one only.
14. Black-headed Conures reared one good young one. Cock Delamere's Whydah, a really handsome bird.
15. Barraband's Parrakeets, the cock went down with paralysed legs

early on, as a consequence the eggs were infertile ; he has now nearly recovered.

16. Crimson-winged Parrakeets.

17. Eight Red-bellied Conures occupied this aviary until one died early in the spring. As no attempts have been made to nest, we are wondering whether it might perhaps have been our breeding hen.

18. Eight Yellow-cheeked Conures at the beginning of the season ; one has died since. No breeding attempts, nest-boxes not even inspected.

The 7 ft. 6 in. wide flight stretching along the front of the main aviaries was stocked this year with two dozen Budgerigars of assorted colours ; and the breeding here has been very satisfactory indeed. The 72 ft. flight has enabled the young to develop into really fine, robust birds—very different to some of the control-bred, bird-room birds seen nowadays. For want of other accommodation two Jobi Island or White-breasted Ground Pigeons (*Gallicolumba jobiensis*) were put in this flight. Fortunately they proved to be a pair, and built a very slight nest, mainly of old millet sprays, precariously constructed on the top of a Budgerigar nest-box hanging under shelter in a corner of the flight. Not only did they hatch a young one, but they succeeded in rearing it in spite of the Budgerigars. At one time we were troubled by daily visits from a Sparrow-Hawk. On these occasions the Budgerigars panicked, and it was not uncommon to find a dozen or fifteen taking refuge with the pigeons on top of the nest-box. This young one is probably the first reared since Herbert Bright's first success when he reared two young ones in 1922.

The 10 ft. wide service passage and wilderness aviary at the rear of the aviaries contains two pairs of Crested Bronze-winged Pigeons, four Purple-headed Glossy Starlings, and a hen Amherst Pheasant. The cock bird was allowed to escape and, as it stayed in the district for a week or more, the daily papers were able to carry reports of a mystery bird seen in North London, with the usual, totally incorrect statement that " Zoo experts are puzzled " !

The large aviary containing the Red-faced Lovebird colony of twenty-eight remains just a colony. There has been considerable activity and much excavation, but as far as we know at present there has not been a single egg. There are also Chinese Painted Quail and breeding Diamond Doves.

The nine outside pens hold a miscellaneous assortment of Golden and Silver Pheasants, domestic Pigeons, Bantams, Java and Barbary Doves, Bronze-winged and Triangular-spotted Pigeons, and, most important, three Pied Imperial Fruit Pigeons. The latter, commonly known as Nutmeg Pigeons, are in perfect plumage, the white parts

being spotless, snowy white, so very different to the dull, cream-coloured birds sometimes seen in zoos. There is also a very tame Carrion Crow.

The White-bellied Caiques continue to occupy their own especial aviary. Although they pair frequently they never go further towards nesting than to sit on top of their nest-box.

Bird-room No. 1, at present houses a pair of Noble Macaws, three Canary-winged, one White-winged, one All-green, and eight Lineolated Parrakeets; one Rosella; two Senegal Parrots; two pairs of Emerald-spotted and two pairs of Blue-spotted Wood Doves, and three Peaceful Doves.

A second chalet-type bird-room has recently been completed, and now has as tenants a pair of Blue-crowned Conures, a Black-headed Caique, and four Bleeding-heart Pigeons.

The house Parrots still consist of a pair of Greys, three Senegals, a Brown-headed, and a Meyer's—originally believed to be Rüppell's.

Finally, at the London Zoological Gardens, we have three Nicobar Pigeons and five Green Imperial Fruit Pigeons which John Yealland is kindly keeping for us until next spring.

* * *

RECENT BREEDING RESULTS

By ALAN LONDON (Adelaide, S. Australia)

This article records the results achieved in my collection from the time of publication of my articles in the AVICULTURAL MAGAZINE (Vols. 55 and 56, 1949–50), until my cessation of avicultural activities after the 1952 breeding season.

Barraband's Parrakeet (*Polytelis swainsonii*).—The three young in the nest at the time of writing (November, 1948) were successfully reared, leaving the nest early in December. The same pair of birds reared five young in November, 1949, and the same number again in November, 1950. In 1951 the old cock died just as the clutch was hatching, but the hen successfully reared all four young single-handed, and they were perfect specimens when they left the nest in November.

For the 1952 season the same hen, one of my own breeding in 1946, was mated to a young wild-caught cock. He proved to be possessed of the nature of a Crimson-wing, and drove her mercilessly long before she was ready to nest, but she eventually hatched four young and reared three.

Rock Pebbler Parrakeet (*P. anthopeplus*).—The hen that successfully reared six young in 1948, died in September, 1949, and her mate died in September, 1950, just after a newly obtained hen had started

laying. This hen did not seem at all attractive to male Rock Peblers, as in 1951 she could not persuade either of two mates to feed her, and she laid two eggs, but did not incubate.

In 1952, although a fourth male, who had been most attentive when mated to a hen King, fed her occasionally, she laid three eggs, but again did not incubate.

Queen Alexandra's Parrakeet (*P. alexandrae*).—Three of the four young previously referred to were satisfactorily reared in January, 1949. In the 1949 season four young were reared in November from the first nest. Of the second clutch only one egg was fertile, but this was hatched and reared. In 1950 four young were reared from the first nest, but a second clutch was deserted. In 1951 three were hatched, and two reared from the first clutch, and two hatched and reared from a very large second clutch.

The old hen failed to moult satisfactorily before the 1952 season, and her first clutch of five were all infertile; she died after laying four more eggs. A second pair kept that year laid a clutch of six late in October; four proved fertile, three hatched, and two left the nest late in December, being very poor, undersized specimens.

King Parrakeet (*Aprosmictus scapularis*).—In 1949 the old pair did absolutely nothing, although the hen had raised my hopes by laying from the perch the previous season. For the 1950 season I changed the hen, but she got no further than visiting the log occasionally.

In 1951 I was fortunate to obtain the pair of birds that had bred regularly for Mr. H. Bradley, but the hen did nothing beyond lay two eggs on the ground in mid-November. In 1952, although I obtained their original massive log, they did not even lay, and a second pair did likewise.

Crimson-winged Parrakeet (*A. erythropterus*).—A new pair obtained in 1949 did nothing and began their moult in the first week of December. In 1950 this pair came into breeding condition in mid-September. The first egg of a clutch of three was laid in mid-October; all were fertile and had hatched in the first week of November, and although two died quite early, the survivor was reared and left the nest in the middle of December.

In 1951 the same pair had a clutch of four eggs early in November, and all had hatched by the end of the month; of these, three were reared, leaving the nest about the New Year. All three young, in addition to their father, died within a month!

For the 1952 season the same hen was mated to a new adult cock, and an egg was found on the ground in the middle of November; although this was placed in the log, three further eggs were not laid until the end of the same month. Of these all three were hatched and reared, the young birds leaving the nest towards the end of January, 1953.

Pileated Parrakeet (*Purpureicephalus purius*).—In 1949, a clutch of seven was commenced on the last day of September, six were fertile, five were hatched, and four reared, leaving the nest in early December. In 1950, for some unexplained reason, no eggs were laid, but in 1951, although the first egg was laid from the perch in mid-October, six more were suitably placed and all were fertile and had hatched by mid-November. Of these five survived to leave the nest about Christmas time, but the smallest only lived a few days.

In 1952 the clutch of six was not commenced until the end of October, four out of six were hatched, and three left the nest late in December.

Crimson Rosella (*Platycercus elegans*).—This species was not represented in my collection in either 1949 or 1950, and a pair obtained before the 1951 season did nothing, as did another pair in 1952.

Adelaide Rosella (*P. adalaidæ*).—The pair that I had had for several years laid a clutch of six in the middle of September, 1949; four of these were fertile, but they were deserted when about due to hatch, and disappeared a couple of days later. A second clutch of four was laid early in November, and three dead young were found late that month. In 1950 the same pair had four eggs by the end of September, but had broken them a few days later, and several more eggs were subsequently laid and broken.

For the 1951 season I obtained a new hen, and she completed a clutch of six eggs, all of which were fertile, by 25th October. Three newly hatched young were observed on 17th November, and four days later there were three young living and one was dead; the two remaining eggs were given to a sitting pair of Western Rosellas, who hatched them, but allowed them to die. The three young Adelaides flourished and the first, a cock, left the nest on 20th December, and the other two, a pair, two days later. This constituted my first success with this species.

In 1952 the hen started to lay early in September, but the eggs were broken almost as soon as they appeared. I thereupon removed the log for a few weeks, and on replacing it, the next egg was laid about the middle of October, and promptly broken; five more followed and were incubated, but only one was fertile, so two Golden-mantled eggs were substituted for the clear ones. The young Adelaide hatched first and the two Golden-mantleds about a week later; the Adelaide died nearly a month after hatching, and the smaller Golden-mantled a week later, the other left the nest prematurely next day, and was obviously being neglected, so was given to a pair of Pale-headed Rosellas who were successful in rearing it.

Yellow Rosella (*P. flaveolus*).—The pair which reared two clutches in the previous season commenced a clutch of six eggs in the middle of October, 1949. These were all fertile and young were seen early in

November, and four were later counted ; these were all reared and left the nest between 11th and 22nd of December.

In 1950 a clutch of six was started early in October, five were fertile, and young were seen by the end of the month ; all of these were reared, and left the nest early in December.

In 1951 the clutch of five was started a little later in October, and all were hatched ; four were reared in early December, but one must have injured a wing, as it was never able to fly. The following year six fertile eggs were produced towards the end of October ; five were hatched and left the nest from mid-December onwards.

Green Rosella (*P. caledonicus*).—No results were obtained in either 1949 or 1950, but in 1951 the hen of the previous season was given a new mate, and she laid the first egg of a clutch of six on 3rd November. All proved fertile, and the first had hatched by 1st December, and four could be counted two days later. One of these died quite early, and two left the nest prematurely on 27th December, an extremely hot day, and were replaced. The first young bird did not leave finally until 8th January, and the other two followed two days later. All were successfully reared ; they were a cock and two hens, and this was my initial success with this infrequently bred species.

In 1952 the same pair laid a clutch of seven fertile eggs at exactly the same time of the year, all hatched and five survived, leaving the nest in mid-January.

Pale-headed Rosella (*P. adscitus*).—The pair which had reared two young the previous year, started the 1949 season with an infertile clutch, and only reared one out of three hatched in the second nest.

The following year the same hen, with a new mate, did not even lay. In 1951 I acquired a new pair which had been regular breeders for several years. They laid their first clutch of six late in August, hatched the lot, and reared five of them. The second round of five was laid in the middle of November, and were all reared by early January. Carrying on in 1952, the same pair reared four out of five hatched from their August clutch, and only one out of the two hatched from the November clutch, in addition to the Golden-mantled previously mentioned.

Northern Rosella (*P. venustus*).—In 1949 the pair that had been mated up the year before started with an infertile clutch in July, and followed with four more eggs in September, all of which were hatched and reared. This was the precursor of three remarkably successful seasons, for in 1950 they reared five young from the first clutch laid early in July, and five more from the end-of-September clutch. 1951 saw a very similar result, four being obtained from a clutch laid late in June and four more from a mid-September laying. For 1952 the results were three from the early clutch and a further four

from the later one ; thus the total works out at twenty-nine hatched and all reared from seven clutches in four seasons.

Eastern Rosella (*P. eximius*).—In 1949 the hen that had been successful in the previous year was mated to one of her sons. She laid a clutch of five eggs towards the end of October and incubated steadily, but all proved infertile. In August of the following year the son, having fallen in love with a Golden-mantled hen in a near-by aviary, proceeded to commit matricide, since when the common race has not been kept.

Golden-mantled Rosella (*P. splendidus*).—The cock which had bred in 1948 was mated to one of his daughters the following season, and although she laid three eggs in November, she did not incubate. In 1950 she was given an unrelated mate, and she started to lay early in October. Although most of the early eggs were broken, I removed eleven from the nest early in November ! Undeterred, she recommenced laying late in the month, and when I removed seven eggs at the end of December I was amazed to find one contained a chick on the point of hatching !

In 1951 the same pair had a clutch of six, laid late in September, of which three were hatched and reared. In 1952 bad habits were again in evidence, for many of the early eggs were broken, ten were removed in November, and two of these were hatched by Adelaides and one eventually reared with the help of the Pale-headededs.

Western Rosella (*P. icterotis*).—No results were obtained either in 1949 or 1950 from the pair which had laid and hatched young in 1948. A new hen was obtained for 1951, and although she laid a clutch of five early in November, all the eggs were broken. She was given a new mate for 1952 and laid a clutch of six in mid-October ; three were fertile, but only one was hatched, and it promptly died. Three more infertile eggs were laid in November, and another two in December, which were not incubated. A second pair of immature birds laid five eggs early in November of that year, but did not incubate.

Red-rumped Parrakeet (*Psephotus hamatonotus*).—This species was not kept in either 1949 or 1950. A pair obtained in 1951 had an infertile clutch of six early, then started non-stop laying early in October, and had a clutch of four in December, three of which were found to be fertile when deserted. In 1952 a different pair did nothing.

Many-coloured Parrakeet (*Ps. varius*).—Not kept in 1949 or in 1950. In 1951 a wild-caught hen mated to an aviary-bred cock did nothing, and a different pair obtained in 1952 were no improvement.

Red-vented Blue Bonnet Parrakeet (*Ps. haematorrhous*).—The old male did nothing with either of the mates provided in 1949 and 1950. A pair of young birds bred in my collection during the war were bought back, but they did nothing in either 1950 or in 1951, and both died in May, 1952.

Yellow-vented Blue Bonnet Parrakeet (*Ps. xanthorrhous*).—The old breeding cock was given a tame hand-reared hen as a mate in 1949, and she laid a clutch of six towards the end of August. Five were fertile and three were hatched and reared, leaving the nest at the end of October. In 1950 the same pair hatched three and reared two at the same time of the year, and in 1951 four were hatched and reared, again at exactly the same time. In 1952 the old cock failed to induce a new mate to lay, even though she spent some time in the log in November.

Little Blue Bonnet Parrakeet (*Ps. narethæ*).—The old breeding hen, with a new mate, had five clear eggs early in September, 1949. In 1950 the same pair had six eggs late in September; only one was fertile, but it was hatched and reared. In 1951 three were fertile out of four laid early in September, and two hatched and were reared. In 1952 a new hen was obtained, but she did not lay, although the cock seemed more vigorous than in previous seasons.

Hooded Parrakeet (*Psephotellus dissimilis*).—No results were obtained, although three different pairs were tried during the four years.

Bourke Grass Parrakeet (*Neophema bourki*).—In 1950 the first pair was the old cock with a new mate. They hatched and reared four in the first clutch, but only reared three out of five hatched in the second try. A second pair reared only three out of six hatched in their first attempt, then laid eleven eggs without incubating, and finally only reared two of six hatched at the third try. In 1951 the first pair only brought off two out of five hatched the first time, but reared all four that hatched in the second attempt. The second pair laid ten eggs, of which I left them seven, all of which they hatched and five of which they reared. The hen then laid a further ten eggs, of which I left her six, all of which hatched, but only three survived. In 1952 the results were not as good. The first pair started by hatching five and letting them all die, and followed with two hatched and reared. The other pair also let die all five that they hatched in the first nest, but reared four from eight hatched at the second attempt.

Blue-winged Grass Parrakeet (*N. chrysostoma*).—In 1950 the hen of the pair that had hatched young in the previous season broke a wing and did not lay. The other hen ran true to form, and again laid a number of eggs without incubating. In 1951 the profuse egg-layer was mated to the by then bereaved husband of the broken-winged hen; her first clutch of seven were laid in October, which is unusually early for this species, but all proved clear. Five out of a second lot of seven were fertile, only three hatched, and all died quite soon. The other cock of the previous year was given a new mate, and she had four hatched from five fertile eggs, but only succeeded in rearing two of them in mid-January. In 1952 this pair hatched all of four fertile eggs laid early in November, and had reared three by mid-December.

Elegant Grass Parrakeet (*N. elegans*).—The old breeding pair raised three out of three and one out of four hatched in 1950. In 1951 the first clutch was clear, only one was fertile in the second, and it was reared, and four Bourke eggs were substituted for an infertile third clutch, and two of four hatched were reared. For 1952 a new cock was obtained, and though the first clutch was again clear, two were reared from three hatched in a second try.

Rock Grass Parrakeet (*N. petrophila*).—In 1950 the old hen had a new mate, and she laid three eggs in October, hatched two of them, but allowed them to die when a fortnight old. The same pair had two clear eggs in 1951, and a new pair in 1952 did not lay, although the hen was in the log a great deal.

Orange-bellied Grass Parrakeet (*N. chrysogastra*).—In 1950 the hen became interested in the log early in December, and laid her first egg on the 30th of that month. The clutch consisted of four, which she incubated steadily, but unfortunately all were clear. Early in 1951 Sir Edward Hallstrom was kind enough to let me have a new cock to replace the old one, known to have been in captivity since 1938 ! This year the hen was seen in the nest, and feeding was observed late in December. On 4th January the cock was dead, and three days later the hen laid an egg ! However, she did not incubate, but produced another egg early in February. Early in 1952 I was lucky enough to obtain yet another cock, the best specimen that I have ever possessed, but unfortunately the hen died in September. The only pair that I know of in captivity nowadays is at the Adelaide Zoo, and though the hen lays and incubates most years the eggs have always been clear.

Turquoise Grass Parrakeet (*N. pulchella*).—In 1950 one pair did not lay ; the other pair did not sit on the first clutch, and reared the only one hatched in the second. The following year this latter pair again did not sit on the first clutch, the second were all clear, and the third again were not incubated. A new hen provided for the cock of the other pair had an infertile first clutch, and reared only one of the three hatched in the second. In 1952 a single pair laid eleven eggs late in the season, but did not sit.

Scarlet-chested Grass Parrakeet (*N. splendida*).—Recent results with this usually easy species were appalling. In 1950 a very fine cock had two eggs laid by his first mate, and they promptly vanished ; he was then given another hen who hatched three and four in successive clutches, but reared none of them. Another cock had an early clutch of seven from this hen, and when mated with the other did no more. In 1951 both hens broke their eggs, and one ultimately died egg-bound, and in 1952 one pair did not lay while the hen of a second pair also died egg-bound, and a new hen then hatched two young and they promptly died.

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LONDON ZOO NOTES

By J. YEALLAND

A very attractive little collection of birds, a present from Sq./Ldr. K. C. Searle, was brought back from Singapore by Head Keeper Akhurst of the Aquarium.

It consisted of a Blue-rumped Parrot (*Psittinus cyanurus*), a Long-tailed Parrakeet (*Psittacula longicauda*), the most beautiful of the genus; six Blue-crowned Hanging Parrakeets (*Loriculus galgulus*), and two Malayan Yellow-breasted Sunbirds (*Leptocoma jugularis microleuca*), new to the collection.

Other presentations include a Gannet (*Sula bassana*), a Yellow-casque Hornbill (*Ceratogymna elata*), and two Red-eared Bulbuls (*Otocompsa emeria*).

Two Abyssinian Ground Hornbills (*Bucorvus abyssinicus*), two of the handsome Goliath Herons (*Ardea goliath*), and two Black Pies or Piapiacs (*Ptilostomus afer*) have been purchased. It used to be thought that red-billed specimens of this Pie were females, but it is now known that only immature birds have red bills. On arrival from the Gambia it was found that one of the Ground Hornbills had some of the common African ticks, *Rhipicephalus sanguineus*, on its head.

Twelve young Budgerigars of the Woburn homing strain have been sent from Whipnade and a few young ones have left the nests in the new aviary. Two more Crested Pigeons have been bred; also a Bronze-wing, five Quaker Parrakeets, three Masked Lovebirds (blue-bred green), a Rosy-faced Lovebird, two Lesser Black-backed Gulls, a Herring Gull, and two Night Herons.

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BRITISH AVICULTURISTS' CLUB

The forty-fourth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 10th November, 1954, following a dinner at 7 p.m.

Chairman : Miss E. Maud Knobel.

Members of the Club : Miss P. Barclay-Smith, Miss K. Bonner, Mrs. V. M. Bourne, W. Brain, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, W. D. Cummings, O. E. Dunmore, Miss S. A. Fothergill, F. Grant, H. J. Harman, Miss S. I. Hobday, H. J. Indge, G. T. Iles, P. H. Maxwell, Miss E. G. Perry, S. Porter, A. A. Prestwich, J. H. Reay, D. M. Reid-Henry, D. H. S. Risdon, R. C. J. Sawyer, P. Scott, E. N. T. Vane, N. S. Walker, H. Wilmot, J. Yealland.

Guests : J. Bailey, B. R. Cordwell, S. A. Croucher, Mrs. S. A. Croucher, Miss H. Gentry, Mrs. F. Grant, Miss S. Indge, H. M. Luther, Miss J. O'Connor, Mrs. J. H. Reay, Miss M. White, Mrs. H. Wilmot, W. A. Woods.

Members of the Club, 29 ; guests, 13 ; total, 42.

Peter Scott gave a brief review of some vanishing birds, California Condor, Whooping Crane, Hawaiian Goose, etc. He suggested the Society might use its influence in any attempt to persuade the conservation societies concerned to allow responsible breeders opportunities for increasing the numbers by breeding in captivity. D. M. Reid-Henry and Frank Grant took part in the discussion that followed.

The programme for the rest of the evening was confined to a conversazione.

The next meeting of the Club is on **12th January, 1955.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

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NEWS AND VIEWS

W. G. Teagle reports that the Pink-footed Goose hatched on the Long Water, Kensington Gardens, is now more than three months old.

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The Ueno Zoo Park, Tokyo, has been successful in hatching one Manchurian Crane and two White-necked Cranes in an incubator.

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The Convention of the American Pheasant Society was held on 5th, 6th, and 7th September, 1954, at Madison, Wisconsin. The Master Breeder's Award was given to our member Robert Gibson, of St. Helena, California.

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The Bronze Medal of the Avicultural Society of South Australia has been awarded to F. E. Welford, for breeding the Golden-breasted Bunting ; to A. Phillips, Black-backed Wren, and to E. Baxter, Black-tailed Finch.

* * *

T. R. Holmes Watkins reports : " After a bad start four pairs of Splendids reared twenty-three very fine young (the same number as last year) ; two more were slightly rickety and were destroyed. Otherwise only Crimson-winged, Pennant's, and Princess of Wales's Parrakeets were bred—King, Pileated, and Brown's all failing."

* * *

Jendaya Conure—Major V. Dilwyn Jones has three strong young ones flying. Purple-capped Lory—Tom Spence has a young one, one

hundred days old. Pennant's Parrakeet—two reared at Dudley Zoo. Guiana Parrotlet—D. F. Castle, "two youngsters about three weeks old." Noble Macaw—E. N. T. Vane, three reared. Abyssinian Lovebird—Captain A. Clarence, two ready to leave the nest.

* * *

The deaths of several interesting birds have been recorded. San Diego Zoo : A Frazar's Oyster-catcher after more than twenty-three years in captivity, having been brought to the Zoo in July, 1930. Basle Zoo : A Condor that arrived 20th April, 1900. Whipsnade Zoo : P. H. Maxwell's Pesquet's Parrot, after over two years, possibly a longevity record for this very rare and difficult species.

* * *

Mrs. Ferne Hubbell, San Diego, writes : " I thought you might be interested to know that we crossed a male Pileated and a female Blue (Mealy) Rosella, and have three lovely birds that look like the Pileated. Also this year we reared two baby Finsch's Parrots ; they were eight weeks coming out of the nest—they are really beautiful.

Since 1950 we have reared nine Scarlet (Red and Yellow) Macaws from one pair."

* * *

The more discriminating aviculturists eagerly look forward to W. J. C. Frost's return from collecting trips to Malaya and New Guinea. The most recent collection consisted of the following : 1 Westermann's and 1 One-wattled Cassowary, 1 Palm Cockatoo, 1 Salawati King Parrakeet, 1 Narcissus Flycatcher, 5 Black-chinned Laughing Thrushes, 15 Painted Quail, 1 Plicated Hornbill, 3 Nicobar Pigeons ; 20 various Birds of Paradise, comprising Lesser, Twelve-wired, King, Hunstein's Magnificent, and Wilson's.

Frost has just left on yet another expedition.

A. A. P.

* * *

NOTES

CORRIGENDUM

Vol. 60, No. 5, September-October number, 1954, page 186 : for " Masked White " Zebra Finch read " Marked White " Zebra Finch.

BANANAS AS A FOOD FOR BIRDS

In the tropics the banana is the chief food given to many caged fruit-eaters. Some of the smaller sorts thrive solely on banana. There are many very fine and also many inferior varieties of this fruit. The latter are very indigestible even when fully ripened. The finer sorts do not last long enough to reach our shores, as the period of edibility lasts for but a day or two. It is these sorts on which tropical birds thrive best. Even the larger parrots will not thrive on inferior kinds yet I have known of a Macaw to thrive on sound banana as its chief food.

The banana of commerce is of a more lasting nature than some of the fancy kinds, keeping as it does for several days in an edible state. Nevertheless not until it is thoroughly ripe is it safe for many birds. Under-ripe it causes colic, frequently followed by deaths. Over-ripe it causes looseness, being then of no value.

Greenish-yellow bananas, whether with or without dark patches on the skin are unwholesome food for the smaller birds, and for that matter the larger parrots. A good test is that the skin peels off easily, neither breaking nor leaving any of it adhering to the fruit. Should any skin adhere to the fruit it should not be fed, as it is still undigestible in such a state. A thoroughly ripened banana has a golden yellow skin covered sparsely with light brown spots.

NEIL MACLEOD.

* * *

CORRESPONDENCE

THE USE OF NECTAR IN FEEDING BIRDS

I was very intrigued by the article and illustration of the Golden-fronted Woodpecker partaking of nectar food by J. Carpentier of the Antwerp Zoo.

Whilst I have not had experience of this particular species, the fact that it is a fruit-eating bird explains why it has taken the nectar, mainly, I think, because the sweetness compares with fruit juices. Old-standing members of the Avicultural Society and foreign bird enthusiasts will know me in the trade as specializing, over the last thirty-five years or so in Tanagers, Manakins, Fruitsuckers, and all the nectar-eating species, and will know that I have always advised feeding fruit-eating birds with sponge-cake or brown bread moistened with nectar, in addition to fruit. I have always fed so and I am certain that it must have saved me many thousands of pounds in preventing losses in fresh consignments.

Tanagers and Sugar Birds are generally packed with banana, which I consider a bad food. I find that fresh arrivals after taking the sponge-cake or bread, which they do straight away, will seldom touch banana again and my sole method for these birds is to give only orange in the way of fruit and for the Sugar Birds a jar of nectar.

I have never tried Tanagers with nectar itself, but no doubt they would drink it; I like the cake and bread for roughage. I have, however, on occasions given pots of nectar to the larger birds arriving in very poor condition. I recently received some Greater Himalayan Barbets in very poor condition and in addition to the food mentioned above I gave a 2 oz. jar of nectar to each bird. They consumed two jars each day, and in a week, unless seen, one would never believe the difference in the condition. At the moment I have a female Cock-of-the-Rock which drinks about 2 oz. each day and a Red-crested Manakin which takes a similar amount.

I give nectar to all my stock, for finches and softbills I add it to the drinking water; my food, however, differs from that used by Mr. Carpentier. Many years ago I cut out honey, condensed milk, and prepared invalid foods as they all turn sour overnight; I use only Dextrine-Maltose ingredients which even in hot weather will not turn sour in 24 hours. My birds, from Humming Birds to Cock-of-the-Rock, do excellently on it. I trust these few notes will be of interest to our members.

P. H. HASTINGS.

182 SULTAN ROAD,
LANDPORT, PORTSMOUTH.

In his article (Sept.-Oct., 1954, issue) on "Woodpeckers in Captivity", Mr. J. Carpentier seeks information on the use of nectar for birds other than those for which this preparation is normally provided.

This is a very intriguing subject, because when feeding Sugar Birds on this diet I always have on hand each day a surplus which is placed before my Superb Tanager, Golden-fronted Fruitsucker, and Black-headed Sibia. As these three birds proved extremely partial to this liquid food I gave a little to my Scarlet Tanager who likewise displayed a marked liking for it.

As a result of these experiments, which I carried out some time ago and from which the above-mentioned birds derived much benefit, I decided to put about half a teacupful in the main aviary to discover whether any other birds in my very mixed collection would be attracted by it. Imagine my surprise and delight when I found that not only did my Blue-throated Barbet and Indian Mynah regard it as a special treat but that they had to reckon with competition from Bulbuls, Pekin Robins, Ground Thrushes, Dyal Birds, and many kinds of seed-eating Finches. My pair of tiny Grey Singers, for example, drank it eagerly as did also Orange-cheeked Waxbills, Zebra Finches, and Tri-coloured Mannikins.

I have little doubt that, especially as a final evening feed in cold weather, nectar is a valuable supplementary diet for many birds for which it has, perhaps, been considered unsuitable. It is, I am sure, a very nourishing medium for any bird that can be induced to take it.

There are, we all know, many varieties of nectar preparations based on the general principle of honey, Swiss milk, and baby food. In respect of choice of components I have found that much depends upon the individual bird. One Blue Honey Creeper I have will not touch his mixture if a meat extract has been added. Nor have I found it desirable, except about once a week, to make use of any of the infant foods. I have a notion that too frequent use of them tends to produce fatness, particularly when birds (as not infrequently happens) are confined in cages where exercise is necessarily somewhat limited.

The whole question of bird nutrition, it seems to me, is one that should be studied very carefully, not merely in relation to species, but specifically (and this is of cardinal importance) to birds as individuals.

C. R. PODMORE.

49 GREYSTONES GRANGE ROAD,
ECCLESALL,
SHEFFIELD 11.

I was interested to read Monsieur Carpentier's article on the Golden-fronted Woodpecker living in the Antwerp Zoo.

I recently bought a Cuban Black-browed Woodpecker (*Melanerpes superciliaris*) and I find that it, too, is fond of the liquid Sunbird food. It also eats grapes, apple, and occasionally a little minced raw beef, but will not touch insectile mixture or mealworms, though these are offered daily. So far the bird is thriving; it is very active and calls a good deal, but it never pecks at the tree trunk in its aviary. Unlike the Antwerp bird, my Woodpecker is very aggressive towards other birds and an unfortunate White-eye that got into the aviary was quickly killed.

I have not been able to discover anything about the natural food of the Black-browed Woodpecker, but Gosse, writing about the Radiolated Woodpecker of Jamaica, says that it eats various fruits as well as wood-boring larvae and ants. It also damages the stalks of sugar cane and sucks out the juice, so I wonder whether any of the Cuban birds have similar tastes.

Like Monsieur Carpentier, I have found that other birds will also drink the Sunbird food and I believe it is good for them, especially the newly-imported small birds.

R. C. J. SAWYER.

226 HAGGERSTON ROAD,
LONDON, E. 8.

SUCCESSFUL BREEDING OF JENDAYA × BLACK-HEADED CONURES

These two birds which were owned by Mr. Rouwenhorst, of the Kroonstad district, nested in a very ordinary box approximately 10 inches square and some 22 inches high. Eggs laid, as far as knowledge serves, numbered three. First indication of any chicks was when about two-three weeks old; this was on Saturday, 20th February, 1954, when both my good friend Mr. Rough and myself inspected them at the request of the owner. They were then very well developed but still covered with grey down and showing hardly any feather.

These three chicks left the nest about four weeks ago (18th May, 1954). In all appearances they are very healthy birds and the characteristics of both parents can be seen. So far it is difficult to do any sexing as they are so very much alike but there appears to be two and one. The one carrying more yellow colouring about the head. However, all show yellow feathering amongst the head which, like the Black-headed Conure, is all black. Wings similar to the same—black beaks and black feet, all show yellowing on breast and abdomen.

The three chicks were acquired by me on 15th May, 1954, and the parents by Mr. Rough. The three chicks are now fully feathered and independent of their parents.

A. R. CARTHEW.

Box 49,

VEREENIGING, S.A.

OXPECKERS

Whilst judging at a bird show at Southall in October of this year I was surprised to find among the exhibits two Oxpeckers or Tick Birds (*Buphagus africanus africanus*). If my memory is correct this is the first occasion that they have been exhibited alive here* and I do not recollect having ever seen them represented at the London Zoological Gardens. They were quiet when examined and in good health and plumage. Sitting partly upright on their perch they peered at one curiously. Their strong feet which enables them to clamber about the hides of herbivorous animals seemed fitted more for this purpose than perching, although they perch on trees and on native cattle-sheds. They were entered as "Blood Birds", not altogether an unsuitable name. Ornithologists at one time differed as to what they actually ate. It seems, however, that not only are ticks eaten in quantity but stomach examinations include *diptera*, lice blood, tissue, and hair. Animals in bad condition with open saddle and gall wounds have such afflicted parts kept open by the birds pecking at flesh and sipping the blood. Much information on the habits of these curious birds has been contributed by Mr. Moreau and Major Cheeseman and others and requoted.

ALLEN SILVER.

LLANTARNAM,
MON.

* Mr. H. Witley owned living specimens previous to 1939.

MEMORIAL TO THE DUKE OF BEDFORD

On behalf of the Committee of the Duke of Bedford Memorial Fund, I write to say how gratifying the response, particularly from members of the Avicultural Society, has been.

Photographs of the aviary, the plaque, and the Memorial Trophy will be published in the AVICULTURAL MAGAZINE in due course, together with a final statement of the total amount of the Fund.

It is hoped that the present Duke will perform the ceremony of unveiling the plaque early next spring, and when the date is announced, donors wishing to attend the ceremony will be invited to communicate with me.

R. C. J. SAWYER,
Honorary Treasurer.

226 HAGGERSTON ROAD,
LONDON, E. 8.

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LIST OF EXCHANGES AND PRESENTATIONS

Members are reminded that the publications presented or received in exchange are deposited in the Library of the Zoological Society of London, Regent's Park, London, N.W. 1.

- Great Britain . *Bird Study, British Birds, Cage Birds, The Ibis, Our Zoo News.*
- Australia . *Australian Aviculture.*
- Belgium . *Le Gerfaut, Le Monde Avicole, Natuurwereld, Ornithologie, Zoo.*
- Denmark . *Dansk Ornithologisk Forenings Tidsskrift, Stuekultur.*
- France . *L'Oiseau, La Terre et la Vie.*
- Germany . *Die Gefiederte Welt, Die Vogelwarte, Die Vogelwelt, Ornithologische Abhandlungen, Ornithologische Berichte, Ornithologische Mitteilungen.*
- India . *The Indian Aviculturist.*
- Italy . *Lo Sport Colombofilo Napoletano.*
- Netherlands . *Ardea, Onze Vogels.*
- South Africa . *The Bokmakierie, The Ostrich, S.A. Feathered World.*
- Sweden . *Vår Fågelvärld.*
- Switzerland . *Der Ornithologische Beobachter.*
- U.S.A. . *America's First Zoo, Animal Kingdom, The Auk, The Condor, The Pheasant Fanciers', Gamebreeders' and Aviculturist's Gazette, The Wilson Bulletin, Zoologica.*

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- FRAU ERIKA DÖPFER, Hercules strasse 8, Kassel, Germany. Proposed by G. A. Gjessing.
- Squadron-Leader C. EVERITT, 5 Brooklyn Grove, South Norwood, S.E. 25. Proposed by E. N. T. Vane.
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- D. C. FRANKS, 249 Park Road, Uxbridge Common, Middx. Proposed by Miss K. Bonner.
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- Squadron-Leader K. C. SEARLE, Station Officers' Mess, R.A.F., Changi, Singapore 17. Proposed by J. J. Yealand.

NEW MEMBERS

The thirteen Candidates for Election in the September–October, 1954, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

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- G. M. BAKER, to The Hermitage, Whitchurch, Shropshire.
- HYLTON BLYTHE, to 1 Grand Parade, Tolworth, Surrey.
- J. R. HODGES, to 23 Ashridge Gardens, Pinner, Middx.
- E. J. T. HOUSDEN, to 29 Putney Hill, London, S.W. 15.
- Dr. L. HOUSDEN, to 29 Putney Hill, London, S.W. 15.
- N. S. IRVING, to Eardswick, Newcastle Road, Gorsy Hill, Nr. Crewe, Cheshire.
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- J. W. LIVERMORE, to The Old Stone House, P.O. Box 41, West Redding, Connecticut, U.S.A.
- Mrs. K. M. McKEE, to Maple Crescent, Rossland, B.C., Canada.
- B. MOTT, to Grey Mill Farm, Wootton Wawen, Nr. Henley-in-Arden, Warwicks.
- J. C. PEARSON, to Southern Kinta Consolidated, Ltd., Southern Kampar Section, Tanjong Tualang, Perak, Malaya.
- J. P. PEDERSEN, to Bernstorffsvej 10, Odense, Denmark.
- M. SAWDEN, to "The Gardens", Uddens, Nr. Wimborne, Dorset.
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The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Cock or Hen Blue-crowned Hanging Parrot.—Mrs. H. DENNY, The Chantry, Horsham, Sussex.

AUSTRALIAN PARROTS IN CAPTIVITY

A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

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